EXAMINATION OF ACADEMIC SELF-REGULATION

VARIANCES IN NURSING STUDENTS

Except where reference is made to the work of others, the work described in this dissertation is my own or was done in collaboration with my advisory committee. This dissertation does not include proprietary or classified information.

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EXAMINATION OF ACADEMIC SELF-REGULATION VARIANCES IN NURSING STUDENTS

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EXAMINATION OF ACADEMIC SELF-REGULATION

VARIANCES IN NURSING STUDENTS

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VITA

Michelle A. Schutt was born July 17, 1969, in Miami, Florida. In 2000, Michelle graduated from Troy State University with an Associate of Science in Nursing and began her clinical nursing practice in the specialty of neonatal nursing. She attended Auburn University Montgomery (AUM) and graduated with Bachelor of Science in Nursing in 2001. Michelle's exposure to excellence in teaching and commitment to student learning demonstrated by the School of Nursing faculty at AUM prompted her to pursue a career in nursing education. She graduated from the University of South Alabama in 2002 with a Master of Science in Maternal/Infant Health and Nursing Education and immediately took a teaching position with the AUM School of Nursing where she is currently a faculty member. She continues to work clinically as a neonatal nurse. Michelle has been married to Mark Schutt for eighteen years. They have four children – Emily Ann, Andrew Ryan, Anna Claire, and Carly Morgan.

DISSERTATION ABSTRACT

EXAMINATION OF ACADEMIC SELF-REGULATION

VARIANCES IN NURSING STUDENTS

Michelle A. Schutt

Doctor of Education, May 9, 2009
(M.S.N., University of South Alabama, 2002)
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Directed by James E. Witte

Multiple workforce demands in healthcare have placed a tremendous amount of pressure on academic nurse educators to increase the number of professional nursing graduates to provide nursing care both in both acute and non-acute healthcare settings. Increased enrollment in nursing programs throughout the United States is occurring; however, due to high attrition rates, these increases do not automatically result in more nursing graduates.

The educational focus in nursing education has recently shifted from a student-driven approach wherein learner-centered learning has replaced teacher-centered teaching in an effort to promote student critical thinking ability, autonomy, and professional identity (Billings & Halstead, 2005). Nursing faculty must have an understanding of the theoretical constructs of self-directed learning, academic self-regulation, and learning

motivation in order to support student progression toward autonomous learning. The unique needs of individual students as well as possible differences in nursing student groups must be considered when developing educational strategies and methods to promote and enhance student integration of content value and progression toward intrinsic motivation.

The purpose of this research was to determine the existence of statistically significant differences in academic self-regulation behaviors (autonomous vs. controlled) two distinct groups of nursing students: (a) traditional baccalaureate nursing students, and (b) non-traditional baccalaureate nursing students (licensed nurses returning to nursing school to obtain a baccalaureate degree). In addition, significant differences in the demographic characteristics between the same two groups of baccalaureate nursing students was explored.

Analysis revealed that non-traditional baccalaureate nursing students have statistically significantly higher autonomous regulation subscale (ARS) scores than traditional baccalaureate students. Female participants reported higher ARS scores than male participants and participants in a single-parent or two-parent household also reported higher ARS scores. Post-hoc analysis further revealed a statistically significant result for the number of dependent children. Additional findings of interests are explored.

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Thank you to my committee members, Dr. Jim Witte, Dr. Maria M. Witte and Dr. Hank Williford, for your patience, encouragement and guidance through this process and through this entire educational endeavor. Dr. Anita All, thank you for embracing the demanding task of outside reader. Tracey Hodges, my colleague and best friend, thank you for taking this trip with me and for your constant ear and shoulder during this process. It has truly been a blessing to complete this journey with you.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

This introduction serves as a brief discussion of self-directed learning, academic self-regulation, and the role of learning motivation in student academic success. The statement of the research problem and the purpose of the study will also be discussed. In addition, the research questions, significance of the study, and study limitations will be presented. The terms used in this research will be defined and the organization of the research will be addressed.

Knowles (1980) asserted that self-directed learning is the learning preference of the adult learner. Self-directed learning can be defined as learner ownership and responsibility for the learning process to include the planning, implementation and evaluation of the learning experience (Brockett, 1985; Caffarella, 1993; Merriam & Brockett, 1997). The desire for self-directed learning becomes increasingly prevalent as learners mature over time; however, many learners resist self-directed learning efforts by educators due to increased personal demand and responsibility placed on the student as the student is required to take a more active role in the planning, organization and evaluation of their learning (Brookfield, 2006). Educators must guide and support adult learners as they progress toward learner self-direction.

Pintrich (2000) defines academic self-regulation as the

> "active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features of the environment. These…activities can mediate the relationships between individuals and the context, and their overall achievement." (p. 453)

Successful student self-regulation results in increased academic success (Schunk, 1993). Academic self-regulation requires the learner to take ownership and primary responsibility for planning the learning experience, self-motivation, initiative, and persistence (Brookfield, 1994; Caffarella, 1993; Cassazza, 2006).

Academic self-regulation requires learner self-awareness. This awareness, referred to as metacognition, encompasses one's personal knowledge of individual learning needs, learning characteristics and preferred learning strategies, academic motivation, and learner self-efficacy, the knowledge of one's ability to be successful at a learning task (Pintrich, 2000). Academic motivation regulates individual learning outcomes as students who are more highly motivated demonstrate higher academic achievement than those who are not. Learner internalization of the value of the relevance and importance of the current content to future goal attainment is a significant factor which contributes to academic motivation to participate in the learning activity and actively engage in the learning process (Bandura, 1971; Schunk, 2001b).

Learner self-awareness of motivation and individual efforts to control and enhance motivation increases academic success; conversely, anxiety and fear of failure can negatively impact academic motivation, interest and value (Pintrich, 2000).

Motivation can be viewed as a continuum from extrinsic motivation to intrinsic motivation (Zimmerman, 1989); however, academic motivation varies as a result of impacting factors such as learner interest, enthusiasm, learner self-efficacy, and valuation of the relevance of the content to current and future learning and goal attainment (Knowles, Holton, & Swanson, 2005).

Knowles (1989) addressed the adult learner's response to different motivators and recognized the value of both extrinsic motivation and intrinsic motivation. Extrinsic motivation results from the influence of external motivating factors such as the desire for a better job, career progression, or pay improvements. In contrast, intrinsic motivation results from the influence of internal value motivators such as the desire for an increased quality of life, increased job satisfaction, and increased self-esteem.

Intrinsic motivation has been demonstrated to be significantly more beneficial in adult education than extrinsic motivation. While most learners are initially dependent on extrinsic motivation at the beginning of a learning activity (Bruner, 1964), as the learner develops an understanding of the value of the knowledge or content and interest increases, the learner can be expected to shift toward intrinsic motivation (Knowles, Holton, & Swanson, 2005). Most traditional college students are in the process of transitioning from external motivators to internal motivators; however, many mature adults may still be primarily extrinsically motivated. Typically, undergraduate students progress toward intrinsic motivation as they move into their major field of study and begin to study content that they value. External factors in the learning environment, both negative and positive, such as feedback, social support, and the presence of external

motivators can contribute to or inhibit academic motivation. These concepts will be further explored in the literature review provided in Chapter II.

Statement of Problem

Occupational employment projections for nurses predict an increase of approximately 587,000 new jobs for registered nurses by the year 2016 (Dohm & Shniper, 2007). This represents an increase of 23 percent. The United States Department of Health and Human Services Health Resources and Services Administration (HRSA) (2004) projects that the current moderate nursing shortage will increase in severity over the next 20 years due to the increased age of the nursing population and attrition due to retirement and retention issues within the workforce. Projections indicate that by 2020, the registered nurse workforce will be twenty percent below the predicted need due to the aging of the nursing workforce and subsequent workforce attrition due to retirements (Buerhaus, Staiger, & Auerbach, 2008).

While these needs are predicted for registered nurses at the bedside, an additional need will exist for advanced practice nurses in outpatient settings such as doctor offices, community health clinics, and home health services as the number of patients served outside the hospital environment increases. This demand will require baccalaureate preparation prior to graduate education. HRSA (2004) further reports that approximately 71,000 registered nurses graduated in 2000 with one-third of these graduates from baccalaureate degree programs. This number reflects a significant decrease in new registered nurses entering into practice, down approximately 12,000 graduates from 1998, just two years prior.

Baccalaureate nursing education is presented with the challenge of successfully educating an increasing number of students to meet the ever growing nursing shortage. The American Association of Colleges of Nursing (AACN) (2006) reported increased enrollment in baccalaureate and graduate nursing programs over the past five years with an 18% increase in enrollment from 2005 to 2006. Unfortunately, while there is increased initial enrollment in baccalaureate nursing programs, this increase does not automatically equate with increased number of graduates and nurses in the work force due to the excessively high attrition rates in nursing academia. Nursing schools in Great Britain, the United States, Israel, and Canada report attrition rates as high as 44% (Pringle & Green, 2005) with academic failure reported as the most common reason for attrition (Ofori & Charlton, 2002).

The primary goal of baccalaureate nursing education is to prepare student nurses for professional practice (AACN, 2001). The National League for Nurses (NLN) (2005) purports that nursing education programs must be "designed to involve students as active participants in the educational enterprise, be flexible to meet constantly changing demands and individual student learning needs, be accessible, and be responsive to diverse student populations" (¶ 1). The NLN further challenges nurse educators to "focus on student learning and creating environments for students and themselves that are characterized by collaboration, understanding, mutual trust, respect, equality, and acceptance of difference" (¶ 16).

A paradigm shift from teacher-centered teaching to learner-centered learning is presently occurring in higher education resulting in a change in the learning environment (Barr & Tagg, 1995; Campbell & Smith, 1997; Fink, 2003). The student is now the

central component of the learning environment. This shift demands that students develop into self-directed learners. Educators must ensure a supportive learning environment that promotes critical thinking, autonomy, and professional identity (Billings & Halstead, 2005). The shift to student-driven education requires all educators to understand the uniqueness of variances and unique needs of individual students and develop a variety of teaching strategies and learning opportunities which serve to support the variety of learning preferences and learning needs of the student population. Educators must have prerequisite knowledge of the theoretical constructs of adult learning theory and have a firm understanding of the best utilization of teaching methods to support self-directed learning.

The recent paradigm shift in higher education has directly impacted nursing academia. The shift from teacher-centered teaching to learner-centered learning has resulted in a nursing educational environment which is student-driven "where the faculty guides the individual development of students as needed" (Billings & Halstead, 2005, p. xiii). Nurse educators must consider the unique needs of the individual student and the theoretical constructs of self-directed learning, self-regulation, and learning motivation and the use of educational strategies and support methods to promote and enhance student integration of content value and progression toward intrinsic motivation. Academic learning activities focus on the development of critical thinking skills, autonomous decision making, clinical competence, case management skills, and teaching strategies focused on health promotion and disease management (Billings & Halstead, 2005; Cowman, 1998; Keating, 2005; Magena & Chabeli, 2005; Välimäki, Itkonen,

Joutsela, Koistinen, Laine, Paimensalo, Siiskonen, Suikkanen, Ylitörmänen, Ylönon, & Helenius, 1999).

Multiple studies on academic self-regulation have been conducted in nursing education (Bahn, 2007; Birks, Chapman, & Francis, 2006; Cooley, 2008; Delaney & Piscopo, 2004; Hudson, 1992; Mansouri, Soltani, Rahemi, Nasab, Ayatollahi, Nekooeian, 2006; McEwan & Goldenberg, 1999; Mullen, 2007; Nilsson & Stomberg, 2008; Smedley, 2007; Thompson, 1992; Tutor, 2006; Välimäki, Itkonen, Joutsela, Koistinen, Laine, Paimensalo, Siiskonen, Suikkanen, Ylitörmänen, Ylönon, & Helenius, 1999; Zuzelo, 2001); however, a review of the literature revealed that no study has been conducted in nursing education to determine the presence or absence of academic motivation differences between groups of nursing students. Nurse educators must understand the unique characteristics of different nursing student subgroups, how to best serve these groups of students, and effective methods to support the academic development of critical thinking and self-directed learning strategies (Billings & Halstead, 2005; Cowman, 1998; Magena & Chabeli, 2005; Välimäki, Itkonen, Joutsela, Koistinen, Laine, Paimensalo, Siiskonen, Suikkanen, Ylitörmänen, Ylönon, & Helenius, 1999).

Purpose of the Study

The purpose of this study was to determine if there was a difference in self-regulation behaviors (autonomous vs. controlled) in two distinct groups of nursing students: (a) traditional baccalaureate nursing students, and (b) non-traditional baccalaureate nursing students (licensed nurses who have previously completed a

diploma or associate degree nursing program and are returning to nursing school to obtain a baccalaureate degree). Research participants were nursing students in a baccalaureate nursing program at one south-eastern public Alabama university.

Research Questions

The following research questions were used in this study:

1. Is there a statistically significant difference in academic self-regulation behaviors (autonomous versus controlled) in the following two distinct groups of nursing students: Traditional baccalaureate nursing students and non-traditional baccalaureate nursing students (licensed nurses who have previously completed a diploma or associate degree nursing program and are returning to nursing school to obtain a baccalaureate degree)?
2. Are there significant differences in the following demographic characteristics between the same two groups of baccalaureate nursing students: Age, sex, ethnicity, marital status, family structure, number of dependent children, previous healthcare experience, current GPA, number of hours in independent study per week, number of hours studying collaboratively per week, number of work hours per week, and number of years since previous degree?

Significance of the Study

There are multiple empirical studies from nursing education regarding various aspects of student learning to include teaching strategies such as concept mapping (August-Brady, 2005), coaching (Lemcool, 2007), web-based instruction (Kumrow,

2005), problem-based learning (Alkhasawneh, Mrayyan, Docherty, Alashram, & Yousef, 2008), and reflective audiotape journaling (Kuiper, 2005); factors influencing academic performance such as multiple role demands (Green, 1987; Lopez, 1992; Thompson, 1992), anxiety (McEwan & Goldenberg, 1999), grade point average (McEwan & Goldenberg; Vincent, 1992), and critical thinking skills (Magena & Chabeli, 2005); self-directed learning strategies (Cowman, 1998; Magena & Chabeli, 2005; Myers, 1999; Välimäki, Itkonen, Joutsela, Koistinen, Laine, Paimensalo, Siiskonen, Suikkanen, Ylitörmänen, Ylönon, & Helenius, 1999); self-directed learning readiness (Smedley, 2007); achievement motivation (McEwan & Goldenberg), motivational factors (Birks, Chapman, & Francis, 2006; Delaney & Piscopo, 2004; Nilsson & Stomberg, 2008; Thompson, 1992; Tutor, 2006; Zuzelo, 2001), content interest and deep approach to learning (Mansouri, Soltani, Rahemi, Nasab, Ayatollahi, Nekooeian, 2006), continuing education in professional practice (Bahn, 2007; Cooley, 2008; Välimäki, Itkonen, Joutsela, Koistinen, Laine, Paimensalo, Siiskonen, Suikkanen, Ylitörmänen, Ylönon, & Helenius, 1999), self-regulation learning strategies in previous degree nursing students in accelerated nursing programs (Mullen, 2007), and graduate education (Hudson, 1992).

This study is significant to nursing education because the findings will provide concrete data on which to base educational decisions regarding content delivery methods, student motivation strategies, and learning activities. Understanding and recognizing possible differences in academic self-regulation across nursing student groups may assist nursing faculty in supporting student learning endeavors and thus increase the number of nursing graduates by limiting the number of students lost to attrition resulting from academic failure.

Nursing faculty in one school of nursing in Alabama can use the resultant data to better serve the two distinct groups of nursing students, traditional and non-traditional baccalaureate nursing students, by recognizing differences in learning motivation resulting from life factor influences and the impact of variances in learning motivation on student academic success. In addition, nursing faculty can provide learning opportunities which promote self-directed learning and offer appropriate supportive feedback in an effort to assist nursing students in the internalization of the value of the content and their individual move toward intrinsic motivation.

Lastly, this research will add to the existing body of knowledge related to self-regulation theory as a whole and promoting self-regulation and the implications of this process within nursing academia and higher education. Educators in higher education, regardless of the discipline, can benefit from these findings by gaining a greater understanding of the complexity of self-regulation.

Assumptions of the Study

For the purpose of this study, the following assumptions were made:

1. Controlled regulation of academic motivation and autonomous regulation of academic motivation was identifiable through participant self-completion of the *Learning Self-Regulation Questionnaire* (LSRQ).
2. Participant demographic data was accurately self-reported on the *Demographic Data Collection Tool* (DCT).
3. Participants offered honest and accurate responses to both the LSRQ and the DCT.

4. The LSRQ was assessed for reliability and validity and produced acceptable measurements.

Limitations of the Study

The limitations of this study included the following:

1. The study was limited to 200 participants comprising the two nursing student groups.

2. Only one student sample from one south-eastern public Alabama university was sampled which may have limited the generalizability of the results.

3. Students may not have honestly completed the LSRQ due to concern regarding faculty review.

4. The sample was minimally diverse in regards to ethnicity and gender which may impact the generalizabilty of the findings.

Definition of Terms

The following operational definitions were used for this study:

Academic self-regulation is "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features of the environment. These…activities can mediate the relationships between individuals and the context, and their overall achievement" (Pintrich, 2000, p. 453). These processes can be focused on the attainment of a specific educational activity or can

be supportive of the attainment of an educational goal, such as course grade or degree achievement (Zimmerman, Bonner & Kovach, 1996).

Autonomous regulation is intrinsic regulation or identified regulation and refers to the learner's tendency toward internal learning motivation on the *Self-Determination Continuum*.

Andragogy is a central conceptual framework of adult learning and encompasses "any intentional and professionally guided activity that aims at a change in adult persons" (Knowles, Holton, & Swanson, 2005, p. 60).

Bachelor of Science in Nursing (BSN) degree – a four year 120 semester credit hour program of study resulting in the conferring of the baccalaureate degree in nursing.

Controlled regulation is external regulation or introjected regulation and refers to the learner's tendency toward external learning motivation on the *Self-Determination Continuum*.

Demographic Data Collection Tool (DDCT) is the tool developed to capture demographic data from the participants (See Appendix B). This tool captured data on the following variables: (a) student classification (nominal scale as TBNS or NTBNS); (b) sex (nominal scale: 1) female; 2) male; (c) age (interval scale); ethnicity; (d) marital status (single, married, divorced, widowed); (e) family unit (two parent family, single parent family, or no children); (f) number of dependent children; (g) previous healthcare experience; (h) current GPA; (i) number of hours spent independently on school work per week; (j) number of hours spent in collaboration on school work per week; (k) hours employed per week; (l) years since previous degree; and (m) previous degree GPA.

Extrinsic motivation refers to an external perceived locus of control. Learners participate in learning projects or activities for the external reward, such as pay improvements, job progression or career enhancement.

Goal proximity refers to the short-term or long-term outcomes associated with goal attainment. Proximal goals are more motivating than distant goals because short-term goal attainment is quicker and movement toward the completion is more noticeable and demonstrates learning progress (Boekaerts, 1995; Cervone, 1993).

Intrinsic motivation (internal motivation) is the innate desire to learn for the pleasure of learning and to satisfy the "itch to learn" (Cross, 1981). Intrinsically motivated learners find sincere pleasure in the learning task (Pintrich & Schunk, 1996), and typically have better learning outcomes than learners who are extrinsically motivated (Deci & Ryan, 1985; Knowles, 1984). Intrinsic motivators include the desire for increased job satisfaction, self-esteem, and increased quality of life.

Junior nursing student is a student in a BSN program who is in their junior year of study, the first year of upper division nursing courses which is comprised of three semesters.

Learning how to learn is an inclusive term referring to student efforts to develop academic skills, learning how to inquire about subjects, and transitioning to self-directed learning. These skills promote future learning and increase the likelihood of significant learning (Myers, 1999).

Learning Self-Regulation Questionnaire (LSRQ) is the survey tool used during this research (See Appendix A). This tool was designed for use by Williams and Deci (1996) with adult learners and assesses learning motivation on two scales, controlled

regulation (external regulation or introjected regulation) and autonomous regulation (identified regulation or intrinsic regulation). While these levels of regulation are categorized under external motivation, the differentiation of academic self-regulation between these two categories serves as the transitional point as the learner moves from extrinsic to intrinsic motivation (Ryan & Deci, 2000a). Responses to the two subscale scores were totaled and averaged.

Non-traditional baccalaureate nursing student (NTBNS) is a nursing student who is a licensed register nurse who has previously completed a diploma or associate degree nursing program. This student is completing three semesters of nursing study to earn a BSN degree.

Self-efficacy is student's belief in his or her capability to succeed at a given task (Bandura, 1997) and involves regulating one's environment, affective and cognitive processes, patterns of behavior and motivation (Bandura, 2000).

Self-directed learning is learner ownership and responsibility for the learning process, which includes the planning, implementation, and evaluation of a learning experience (Brockett, 1985; Caffarella, 1993; Merriam & Brockett, 1997).

Senior nursing student is a student in a BSN program who is in their senior year of study, the second year of upper division nursing courses which is comprised of two semesters.

Traditional baccalaureate nursing student (TBNS) is a student who has not yet obtained a degree in nursing but may have a degree in another discipline. This student would be completing the curricular requirements of 120 credit hours for completion of the BSN degree in nursing.

Organization of the Study

The understanding of the differences in student achievement motivation across nursing educational environments provides insight to nursing faculty as curricular outcomes and learning outcomes are developed. This study investigated the existence of differences in self-regulation behaviors between two distinct groups of baccalaureate nursing students as measured by scores on the Self-Regulated Learning Questionnaire (LSRQ). Based on the initial findings of variance, further analysis of contributing life factors (age, marital status, number of children in the home, prior work history, etc.) was conducted to determine the possible correlation of independent variables to variances in academic self-regulation.

Chapter II provides a comprehensive review of the literature concerning adult learning theory, social cognitive theory, self-directed learning theory, academic self-regulation theory, and motivation theory. In addition, empirical studies regarding self-directed learning theory, academic self-regulation theory, and motivation theory in both adult education and nursing education will be discussed. Chapter IV will offer a discussion of the results of the research study. Chapter V will conclude with a summary and discussion, implications of the findings, recommendations for use of the findings, and a conclusion based on the study findings.

CHAPTER II

LITERATURE REVIEW

The purpose of this study was to determine if there was a difference in self-regulation behaviors (autonomous vs. controlled) in two distinct groups of nursing students: (a) traditional baccalaureate nursing students, and (b) non-traditional baccalaureate nursing students (licensed nurses who have previously completed a diploma or associate degree nursing program and are returning to nursing school to obtain a baccalaureate degree). Research participants were nursing students in a baccalaureate nursing program at one south-eastern public Alabama university.

The research questions addressed in this study are as follows: (a) Is there a statistically significant difference in academic self-regulation behaviors (autonomous versus controlled) in the following two distinct groups of nursing students: Traditional baccalaureate nursing students and non-traditional baccalaureate nursing students (licensed nurses who have previously completed a diploma or associate degree nursing program and are returning to nursing school to obtain a baccalaureate degree)? (b) Are there significant differences in the following demographic characteristics between the same two groups of baccalaureate nursing students: Age, sex, ethnicity, marital status, family structure, number of dependent children, previous healthcare experience, current GPA, number of hours in independent study per week, number of hours studying

collaboratively per week, number of work hours per week, and number of years since previous degree?

This study is significant to nursing education because the findings will provide concrete data on which to base educational decisions regarding content delivery methods, student motivation strategies, and learning activities. Nursing faculty in one school of nursing in Alabama can use the resultant data to better serve the two distinct groups of baccalaureate nursing students, traditional and non-traditional, by recognizing differences in learning motivation resulting from life factor influences and the impact of variances in learning motivation on student academic success. In addition, nursing faculty can provide learning opportunities which promote self-directed learning and offer appropriate supportive feedback in an effort to assist nursing students in the internalization of the value of the content and their individual move toward intrinsic motivation.

This chapter provides theoretical foundations related to adult learning theory and presents the concept of self-directed learning theory and the characteristics of the adult self-directed learner. Social learning theory and developmental theory will be discussed. This chapter examines the literature in an effort to explore the theoretical foundations of self-regulation as a component of self-directed learning in the successful achievement of academic pursuits and the significance of motivation in the process of self-regulation. This chapter also discusses the development, implementation, and use of the Self-Regulated Learning Questionnaire. A review of nursing education literature will be integrated into the discussion of self-directed learning, self-regulation, and motivation. The need for further research as identified in the review of the literature will be briefly discussed and a brief summary of the chapter will be provided.

Conceptual Frameworks of Adult Learning Theory

Andragogy is defined as the "concept of an integrated framework of adult learning" and encompasses "any intentional and professionally guided activity that aims at a change in adult persons" (Knowles, Holton, & Swanson, 2005, p. 60). The process of learning throughout life is supported by a continuum of learning opportunities which begins with pedagogy in childhood, slowly transitions to andragogy in late adolescence and early adulthood, and may at times swing back and forth from pedagogy to andragogy throughout the remainder of the lifespan (Cross, 1981). This continuum of learning is impacted by several factors specific to individual learners including learner experience, readiness to learn, orientation to learning and maturity level.

Variances in the following six learner-focused categories form the theoretical core differences in pedagogy and andragogy (Knowles, Holton & Swanson, 2005). These variances include the learner's need to know, the learner's self-concept, the role of the learner's experience, the learner's readiness to learn, the learner's motivation to learn, and the learner's orientation to learning. At the time of instruction, the child learner only needs to know the content and has a limited need to know how the information being learned will be utilized in later life situations. The child learner's self-concept is that of a dependent personality due to the fact that the learner brings little, if any, experience to the learning situation. The learner gains experiential knowledge in a passive manner through teacher-driven instructional methods (Knowles, 1980). Experience obviously plays a limited role in pedagogy simply due to the fact that the participants in pedagogy, children, do not have sufficient life experiences to relate to the newly learned content. As

a result, pedagogical transmittal techniques tend to be limited to lecture presentations, textbook readings and reviews, and audiovisual aids (Knowles, Holton, & Swanson, 2005).

Readiness to learn is determined by the group's developmental ability to learn the information as a group and individual fear of failure at a sufficient level to compel the learner to maintain their learning at the same level of the group. This fear of failure may be prompted by a desire to not disappoint the teacher or parents by earning poor grades or not progressing to the next class (Knowles, 1980). Motivation is directly tied to readiness to learn as children are motivated to learn by negative or positive external motivators such as grades, rewards, and parental and/or teacher response. Orientation to learning is subject-centered and organized in a lock-step logical sequence based on subject-matter content; however, the content learned may not be readily applicable to everyday life situations.

In contrast, the six assumptions of andragogy reveal that life experience plays a major role in the differences between pedagogy and andragogy. Adults need to know the relevance of new knowledge prior to undertaking the effort to learn new content; thus, one of the first acts of facilitation of adult learning is assisting the learner in identifying the benefits of learning new content and the consequences of not learning the given content (Knowles, Holton, & Swanson, 2005). These benefits and consequences can be linked to personal goals, career goals, learner performance or quality of life.

As young adults mature, there is a shift from dependency to self-directed learning. The rate of this shift in self-concept varies among individuals. Most adult learners are typically self-directed in multiple areas of their lives; however, these same adults may

need assistance transitioning to self-directed learning due to educational conditioning resulting from traditional pedagogical methodologies in childhood (Knowles, 1980). This shift in self-concept may be directly impacted by the learner's life experiences which serve as a learning resource for future learning encounters, not only for the learner but for fellow learners as well. As a result of these life experiences, the adult learner has a different learning context than the child and can more effectively participate in active learning activities such as lab experiences, discussions, case studies, etc., that draw on the learning groups' various experiences (Knowles, Holton, & Swanson, 2005).

Readiness to learn and motivation are directly linked to the need to know. Adult learners must identify a gap in their learning and thus, the "need to know" specific information is a prerequisite for readiness to learn. The adult learner must value the information presented for the learning to be effective. This process can be facilitated by assisting students in self-identifying gaps in their knowledge and recognizing the personal benefits gained from actively engaging in learning activities. Once identified, these internal benefits, such as increased job satisfaction, self-esteem, pride, etc., serve as motivators for the adult learners (Knowles, Holton, & Swanson, 2005).

Orientation to learning in andragogy shifts from subject-centered learning to life-centered, task-centered or problem-centered learning (Knowles, 1980). Adult learners are motivated to learn information and concepts that will help them be successful in their daily lives. "Issues of motivation, preference for learning style and interest all enter into the attitudes of learners which may either encourage and stimulate self-directed learning, or present obstacles and constraints to learning" (Keirns, 1999, p. 132). In addition, adult

learners learn more effectively when information is connected to real-life situations and events (Knowles, Holton, & Swanson, 2005).

Lindeman (1926) presented the following key characteristics of adult learners which constitute the foundation of adult learning theory: (a) Adults are motivated to learn as they experience needs and interests that learning will satisfy; (b) Adults' orientation to learning is life-centered; (c) Experience is the richest source of adult learning; (d) Adults have a deep need to be self-directing; and (e) Individual differences among people increase with age. Most adult learners pursue additional educational opportunities primarily on a voluntary basis in an effort to increase their work skills and thereby advance their career; however, a considerable number of adult learners engage in learning activities simply for the enjoyment and pleasure of learning new information (Tough, 1979). Adult learners desire active learning activities and expect their life experiences to be respected and drawn on during learning activities.

The Characteristics of Adults as Learners (CAL) framework differentiates adult learners from children learners and suggests teaching strategies to facilitate adult learning (Cross, 1981). The CAL model is composed of both personal characteristics, which describe the learner, and situational characteristics, which describe the learning conditions. Situational characteristics are typically easily distinguished characteristics such as full-time students versus part-time students or voluntary learning versus compulsory learning.

Personal characteristics follow the growth and development of the individual learner across the lifespan and the CAL model suggests three specific growth and development continuums: Physical characteristics related to aging, sociocultural

characteristics related to life phases, and psychological characteristics related to developmental stages (Cross, 1981). The individual learner will be at a different point of growth in each area and the precise point of growth and development in each category will contribute to the learner's unique learning characteristics including physical ability, readiness to learn, ego maturity, and self-directedness. Understanding the multiple characteristics of the adult learners and the process of self-directed learning allows adult educators to "gain a more holistic view of the learner" (Merriam & Brockett, 1997, p. 140).

Smith (1982) identified the following four distinctly unique contributing factors which impact adult learning experiences: Life experiences incurred over time; progression through distinct physical, psychological and social developmental phases; multiple role demands and responsibilities; and anxiety and uncertainty about their learning. Additional contributing factors include the maturity level of the learner, the learner's self-confidence, and the learner's perceived self-competence. The adult educator must consider these contributing factors and be ever mindful of the adult learner's individual self-directed learning needs, life responsibilities and multiple role requirements.

Undergraduate education in the United States has undergone a paradigm shift as academic institutions restructure in an effort to transition from a teaching paradigm to a learning paradigm (Barr & Tagg, 1995; Campbell & Smith, 1997; Fink, 2003) resulting in a learning environment focused on producing learning, not providing instruction (Fink). This paradigm shift is supportive of a learning environment that is student-focused, as opposed to educator-focused, and provides learning opportunities for students

to develop into self-directed learners (Barr & Tagg). Campbell and Smith differentiated the changes that exist between the old teaching paradigm and the new learning paradigm. Table 1 provides these changes.

This new learning paradigm requires students to jointly participate with faculty in the development of knowledge construction to become actively engaged in constructing, discovering, and ultimately transforming the knowledge for their own independent purpose (Campbell & Smith, 1997). The adult educator must assume the role of a facilitator, a guide who assists the learner in identifying their personal learning needs and determining effective learning strategies (Hiemstra, 1985). In addition, the educator must serve as a coach, providing timely and effective feedback to support the learner during periods of stress and unease. These actions assist students to develop self-directed learning skills and become self-regulated learners. Svinicki (2004) argues that while novice learners have difficulty understanding the relevance of the current learning content to future academic, professional, and life goals, educators can assist learners in connecting what is being learned today to the knowledge the learner will need in the future.

Nursing education must embrace the paradigm shift to a learner-centered educational approach in an effort to facilitate student nurses who can critically think and take ownership of their life long learning (Billings & Halstead, 2005; Cowman, 1998; Magena & Chabeli, 2005; Välimäki, Itkonen, Joutsela, Koistinen, Laine, Paimensalo, Siiskonen, Suikkanen, Ylitörmänen, Ylönon, & Helenius, 1999). Greveson and Spencer (2005) further asserted that medical educators should incorporate self-directed learning principals so as to produce individuals who manage learning throughout lifelong careers.

Table 1

Old and New Paradigms for College Teaching

	Old Paradigm	New Paradigm
Knowledge	Transferred from faculty to students	Jointly constructed by students and faculty
Student	Passive vessel to be filled by faculty's knowledge	Active constructor, discoverer, transformer of knowledge
Mode of learning	Memorizing	Relating
Faculty purpose	Classify and sort students	Develop students' competencies and talents
Student growth, goals	Students strive to complete requirements, achieve certification within a discipline	Students strive to focus on continual lifelong learning within a broader system
Relationships	Impersonal relationship among students and between faculty and students	Personal relationship among students and between faculty and students
Context	Competitive, individualistic	Cooperative learning in classroom and cooperative teams among faculty
Climate	Conformity, cultural uniformity	Diversity and personal esteem; cultural diversity and commonality
Power	Faculty holds and exercises power, authority, and control	Students are empowered; power is shared among students and between students and faculty
Assessment	Norm-referenced (that is, grading on the curve); typically use multiple-choice items; student rating of instruction at end of course	Criterion-referenced (that is, grading to predefined standards); typically use performances and portfolios; continual assessment of instruction
Ways of knowing	Logical-scientific	Narrative
Epistemology	Reductionist; facts and memorization	Constructivist; inquiry and invention
Technology	Drill and practice; textbook substitute; chalk-and-talk substitute	Problem-solving, communication, collaboration, information access, expression
Teaching assumption	Any expert can teach	Teaching is complex and requires considerable training

Source: Campbell and Smith, 1997, p. 275.

Development of Self-Directed Learning Principles

To fully understand academic self-directed learning, a comprehensive review of self-directed learning principles is required. Houle (1988) set the stage for today's interest in participation and self-directed learning. Houle identified three interrelated groups of learners and presented the typology of learning orientation. All learners can be categorized as goal-oriented, activity-oriented, or learning-oriented learners. Goal-oriented learners engage in learning activities to meet a specific a specific goal such as degree. Activity-oriented learners participate in the learning activity for the sake of the activity or the social interaction of the learning environment. Learning-oriented learners are life long learners and pursue knowledge for pleasure, not for external accomplishment. Adult learners may engage in different forms of learning for different content areas and individuals have overlapping learning orientations throughout their lifespan and can shift from one orientation to another based on their interest and motivation (Houle, 1988).

Houle's typology led others to investigate to determine adult reasons for participating in learning activities. Boshier (1971) argued that educators need to know what motivates adult learners in an effort to increase the quality of education, to increase the quantity of adult learning experiences, and to decrease the occurrence of attrition. The development and later revision of the Education Participation Scale (EPS) resulted in the determination of five to eight factors which contribute to adult desire to participate in learning activities (Boshier & Collins, 1985; Cross, 1981). Morstain & Smart (1974) replicated Boshier's study to determine group variances in motivational factors resulting from age and gender differences. Factor analysis on EPS was performed to determine the

utility of the instrument and a resultant six factors for participation were identified: social relationships, external expectations, social welfare, professional advancement, escape/stimulation, and cognitive interest.

Phillip Candy (1991) focused on explaining the theory of self-directed learning and provided useable strategies for adult educators. Candy differentiated between the goal of self-directed learning and process of self-directed learning and offered a comprehensive review of the literature outlining the research and expository efforts of educators in both venues published from the late 1960's to the late 1970's and explored multiple scholastic works from this time period. Candy offered the term autodidaxy to encompass self-directed learning which occurs outside of a formal learning environment.

Various studies report successful self-directed learning to be contingent on the presence of multiple characteristics and qualities (Bruner, 1964; Caffarella, 1983; Candy, 1991; Guglielmino, 1977; Hiemstra & Judd, 1978; Knowles, 1984; Mezirow, 1981; Smith, 1982; Tough, 1979). The self-directed learner demonstrates the multiple attributes including a methodical and disciplined approach to learning, logic and analytical skills, willingness to self-reflect and self-evaluate, flexibility, persistence, responsibility, creativity, confidence and a positive self-concept (Candy, 1991; Guglielmino, 1977). In addition, a successful self-directed learner, regardless of the learning mode, whether self-directed, collaborative, or formal, must be independent and self-sufficient, have basic knowledge related to learning methods, be motivated and be able sustain their motivation (Smith, 1982).

Tough's (1979) report *The Adult's Learning Project* focused on independent scholarship and presented Tough's theory that self-directed learning is a learning process

with specific phases. Tough indicated that two-thirds of all adult learning activities were planned, implemented and evaluated solely by the learner outside of a formal learning environment. Knowles (1980) asserted that future adult educational efforts should focus on the promotion of self-directed learning by promoting learning opportunities that require learners to self-determine their learning needs, develop their own learning objectives, share responsibility for planning and completing learning activities, and actively self-evaluate progress toward the learning objective. This process is challenging for both the educator and the learner as both parties become more comfortable with their roles in the process as growth occurs over time.

Goleman (1995) explored the multiple realms of emotional intelligence as an adjunctive component of individual performance and goal achievement and purported that emotional intelligence is comprised of "self-control, zeal and persistence, and the ability to motivate oneself" (p. xii). Goleman focused on the psychological role that personal emotional competence plays in one's ability to achieve personal goals. Goleman divided the skills of emotional intelligence into two categories, personal competence and social competence. Personal competence comprises self-awareness, self-regulation, and motivation, while social competence consists of empathy and social skills. The subcomponents of the personal competence directly correlate with self-directed learning skills. Learners must be self aware of "one's internal states, preferences, resources, and intuitions" (Goleman, p. 26); thus, Goleman provides the three distinct tasks of self-awareness, emotional awareness, accurate self-assessment and self-confidence. Self-regulation is central to personal competence encompasses self-control,

trustworthiness, conscientiousness, adaptability and innovation. Motivation includes achievement drive, commitment, initiative and optimism (Goleman, 1998).

Fink (2003) presented the Taxonomy of Significant Learning wherein the following six significant areas of learning are categorized: Foundational knowledge, application, integration, human dimension, caring, and learning how to learn (See Figure 1). While all categories are important to offering successful learning opportunities, areas of interest for this discussion include Human Dimensions and Learning How to Learn.

Fink integrates Goleman's concepts of personal competence and social competence under the category of Human Dimensions. This category includes the sub-processes of learning about others and one's self, understanding one's self, and how one reacts to others as well recognizing one's personal competence which includes self-awareness, self regulation and motivation.

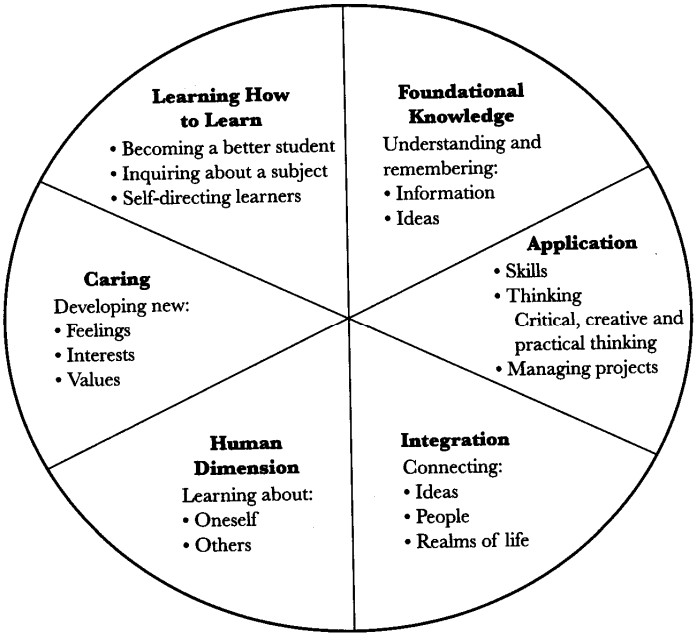

Figure 1. Taxonomy of Significant Learning.

The category of learning how to learn includes student efforts to develop academic skills, learning how to inquire about subjects, and transitioning to self-directed learning. These skills promote future learning and increase the likelihood of significant learning (Myers, 1999). Figure 2 provides a visualization of Fink's model of the interactive nature of significant learning which demonstrates how the six constructs work to provide a significant learning opportunity for students.

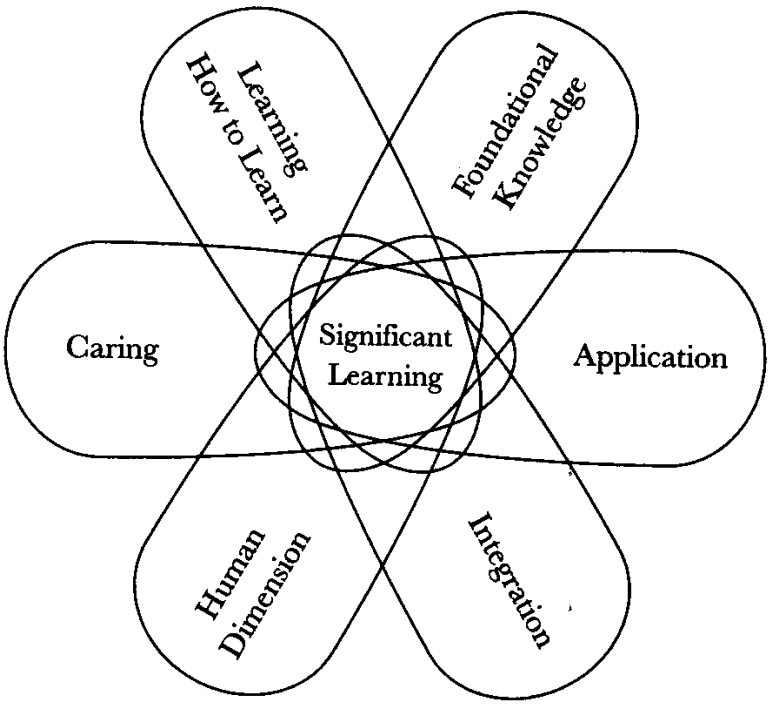

Figure 2. The Interactive Nature of Significant Learning.

Brockett and Hiemstra (1991) developed the Personal Responsibility Orientation (PRO) model, a theoretical model which places self-direction in learning as a overriding theme with two related sub-dimensions: (a) self-directed learning based on the elements of the teaching-learning process similar to Knowles prior definition, and (b) learner self-

direction, which focuses on internal individual characteristics which predispose that individual to take primary responsibility for their learning (Brockett & Hiemstra, 1991).

Thomas and Rohwer (1993) offered the Effort Management Hierarchy model based on the four hierarchical levels of study activities which include monitoring, self-regulation, planning and evaluation and argued that learner self-direction occurs in a continuum of activities which range from awareness of need to individual control of one's study efforts to include concentration, time and learning effectiveness. Garrison's (1997) model of self-directed learning is quite similar in theory. This model offers the input of initial motivation at the beginning of a task and combines this motivation with self-monitoring and self-management with self-directed learning as the end result. Regulation and reflection are key to self-directed learning.

The Self-Directed Learning Readiness Scale (SDLRS) developed by Guglielmino (1977) and the Oddi Continuing Learning Inventory (OCLI) are two quantitative measurement tools which have contributed to the extensive research regarding self-directed learning. The SDLRS instrument was developed in an effort to measure learner characteristics related to self-directed learning and to assess the learner's readiness to participate in self-directed learning in an academic environment such as high school or college (Hiemstra, 1985). The SDRLS has been used by multiple educational researchers over the past twenty-six years; however, concerns have been expressed regarding the SDRLS accuracy in measurement of self-directed learning due to stability of the factor solutions of the SDLRS and possible resultant inaccurate assessments (Hoban, Lawson, Mazmanian, Best, & Seibel, 2005; Straka & Hinz, 1996). Concerns regarding Guglielmino's SDLRS led Fisher, King and Tague (2001) to develop a 40 item self-

directed readiness learning readiness scale for use in nursing education and reported homogeneity and validity; however, further research is necessary to determine content validity.

The OCLI is a 24-item 7-point Likert scale measurement tool which reports on three domains of self-directed learning: (a) proactive/reactive learning drive, (b) cognitive openness/defensiveness, and (c) commitment/aversion to learning (Chou & Chen, 2008). Higher scores on the OCLI correlate to greater characteristics of a self-directed learner. Harvey, Rothman, and Frecker (2006) completed an additional factor analysis on the OCLI and concluded that the original three domains should, in fact, be four domains and offered the following four overlapping dimensions: Learning With Others, Learner Motivation/Self-Efficacy/Autonomy, Ability to be Self-Regulating, and Reading Avidity.

Self-Directed Learning Principles

Self-directed learning is simply defined as learner ownership and responsibility for the learning process, which includes the planning, implementation, and evaluation of a learning experience (Brockett, 1985; Caffarella, 1993; Merriam & Brockett, 1997). Self-directed learning is the learning preference of the true adult learner (Knowles, 1980) and is central theme in andragogy because adult learners have a "deep psychological need to be generally self-directing" (Knowles, p. 43). This need becomes more prevalent as the learner matures; however, this process is individualized and many learners may alternate degrees of self-directedness in different environments and as learning situations vary.

Self-directed learning encompasses both external and internal factors which force the learner to engage in more responsibility regarding the learning process (Brockett & Hiemstra, 1991). External factors focus on instructional processes, learning environment, and facilitation methods to assist the learner in self-evaluation, planning, implementing, and evaluating learning. Internal factors include the multitude of personality characteristics that impact a learner's movement toward self-directed learning.

A strong inherent connection exists between self-directed learning and self-concept and multiple social characteristics and personality traits contribute to successful self-directed learning (Merriam & Brockett, 1997). Guglielmino (1977) suggested that self-directed learning is promoted by a mix of learner attitudes, values and abilities and identified fifty-six characteristics and psychological qualities that impact learner readiness to transition to self-directed learning. While the list of characteristics is exhaustive, Guglielmino recognized that self-directed learners tend to be goal-oriented and accept responsibility for their own learning; demonstrate initiative and independence; be persistent and self-disciplined; possess a high degree of curiosity; enjoy learning; have a strong ability to learn independently; and, tend to see problems as challenges, not obstacles.

Four major factors contribute to the learner's degree of self-directedness: (a) the learner's technical skill related to the learning process; (b) the learner's familiarity with the content; (c) the learner's sense of ability to learn the material, or competence; and (d) the learner's commitment to learning (Merriam & Caffarella, 1999). The self-directed learner implements creative and adaptive ways to attain the learning goals by reviewing the learning task, selecting appropriate learning strategies, planning out the learning and

studying process, evaluating the learning progress, seeking out feedback from others, and regulating thought processes (Brookfield, 1994; Pintrich & Schunk,1996; Schunk & Zimmerman, 1994; Thomas & Rohwer, 1986; Warkentin & Bol, 1997; Zimmerman, 1990).

Self-directed learning properties should be viewed as a continuum, not an absolute condition. While learners may demonstrate self-directedness in other areas of life management, frequently students in formal educational environments revert to pedagogical expectations for the learning environment out of habit and familiarity (Knowles, 1980). Self-directed learning is greatly individualized and is impacted by learner maturity and experience; however, the older student may not demonstrate stronger self-directed learning readiness than a younger student. In addition, the learner's experience in previous learning encounters may have encouraged the use of self-directedness to achieve the learning outcomes thus providing a starting point for the learner in the next encounter (Knowles). Pekrun, Frenzel, Goetz, and Perry (2007) asserted that self-regulation of learning behavior allow the student to adapt behavior according to the goal demands and the demand of the learning environment.

A unique set of skills is required for self-directed learning to be successful. The learner must be curious about the content, recognize the need for the information, be willing to ask questions, and recognize the availability of multiple resources (Smith, 1982). Adult educators must promote self-directed learning by providing learning opportunities that require learners to self-determine their learning needs, develop their own learning objectives, share responsibility for planning and completing learning activities, and actively self-evaluate progress toward the learning objective (Knowles,

1980); however, this process can be challenging due the number of factors which impact self-directed learner readiness and faculty willingness to change their instructional style. Black and Deci (2000) argued the following:

> Instructional style low in autonomy support is likely to be related to students' feeling bad, and possibly to performing badly thus shifts in teaching approaches toward providing more support for students' autonomy and active learning may hold promise for enhancing students' achievement and psychological development. To some extent, this can be accomplished by having professors become more student-oriented, more accessible to students, and responsive to their needs and concerns. That, of course, would require willingness on the part of faculty to change their orientations, and promoting such willingness may be very difficult. (p. 754)

While student learning may be self-directed, the facilitator must be cautious not to isolate the student and leave the student stranded and without guidance. The educator must assist the learner with assimilation to the role of a self-directed learner role by helping the learner establish learning goals and by serving as a consultant by offering their own experience and knowledge as a source of information (Brockett & Hiemstra, 1991).

Adult educators in the formal and informal learning environment must assist students in engaging in the process of self-directed learning and serve as facilitators in the process, not merely teachers of content. Collaborative discussion and exploration to expose the learner to the benefits of learning new content, assist the learner in determining the learner's desired outcomes, and help the learner complete a needs

assessment to identify “gaps between their aspirations and their present level of performance” (Knowles, 1980, p. 57). This process can be unsettling for the learner as self-reflection may reveal needs or subject knowledge deficits not previously recognized or subject knowledge deficits. Self-directed learning can by promoted by exploring multiple learning strategies and available resources and by supporting the learner in determining the best learning partnership (independent study pair work, group work) and learning environment.

The process of evaluation is critical to successful self-directed learning. The adult educator should assist the learner in developing an evaluation tool to promote critical reflection to determine if the learning outcomes were met (Knowles, 1980). These requirements necessitate a greater sense of commitment to the process of self-directed learning than the traditional teaching methods of rote lecture and evaluation as this method of student-driven instruction can be time intensive and demanding. Knowles (1980) further argues the following:

> The truly artistic teachers of adults perceive the locus of responsibility for learning to be in the learner; they conscientiously suppress their own compulsion to teach what they know students ought to learn in favor of helping students learn for themselves what they want to learn. (p. 56)

A resultant period of dissonance may occur during which the learner experiences an uncomfortable state due to the contrast of previous learning experiences wherein the learner was given all the information they need to know and merely has to memorize the content.

Thoughtfully planned learning opportunities are necessary which guide the student and provide social contact with other learners who are also manipulating the learning content to determine relevance and meet the learning outcomes. Adult educators in both formal and informal settings must recognize the attributes of the adult learner and strive to develop appropriate learning opportunities that strengthen the skills required for future successful self-directed learning efforts. Adult educators must value the adult learner on a personal level and respect the learner's unique learning preferences and needs in order to ensure a positive learning outcome.

Not all voices in education heartily support the concepts of self-directed learning. Brookfield (1990) cautioned that the development of self-direction is unsatisfactory in college learning in that it leads to working in isolation instead of promoting collaborative learning. Fifty percent of all learning activities are completed in isolation (Winne, 1995); consequently, educators must diligently work to support self-regulated learning and further their understanding of how learners use self-regulated learning strategies when working alone. Brookfield further encourages the integration of cooperation and self-direction in an effort to foster the student ability to work together and contribute to a collective effort. While many educators view self-directed learning from the cognitive perspective, that of individual private learning, Greveson and Spencer (2005) caution that learner success is enhanced by social interaction with other learners and the learning environment. Dornan, Hadfield, Borwn, Boshuizen, and Scherpbier (2005) caution educators to ensure that the learner is not isolated and to be aware of the multiple learner support needs that must be met to enable learners to successfully transition to a more self-directed learning style.

Brookfield (2006) discussed student resistance to self-directed learning and cautioned that many educators demand students take responsibility for planning and organizing their learning prematurely. This can place students in the position of designing their learning activities prior to developing a full understanding of the content and can jeopardize student learning outcomes. Guidance provided by educators through evaluations of learning approaches and strategies is imperative to support students as they develop deeper understanding, improve their learning skills, and can help them become aware of new learning needs. In addition, positive feedback and encouragement can deepen student motivation to learn and commitment to the learning process (Brookfield, 2006).

Social Cognitive Perspectives of Learning Self-Regulation

Social cognitive theory is based on the central theme of learning through observation of real and representational models or symbols (Svinicki, 2004). While social cognitive theory will be discussed in detail, a synopsis of theoretical views from other learning theories as set forth by Zimmerman (2001) is replicated in Table 2. Bandura (1976) argued that social cognitive processes are directly associated with observational learning and recognized four components of observational learning: 1) attentional processes, 2) retention processes, 3) motor reproduction processes and 4) reinforcement and motivational processes. These four internal subprocesses are foundational to the learning experience. Attentional processes refer to the learner's interest in the model, whether it be a teacher modeling behavior, or a television show or book (Schunk, 2001a). Retention processes include the cognitive methods used to commit the actions of a model

Table 2
A Comparison of Theoretical Views Regarding Common Issues in Self-Regulation of Learning

Common Issues in Self-Regulation of Learning

Theories	*Motivation*	*Self-Awareness*	*Key Processes*	*Social & Physical Environment*	*Acquiring Capacity*
Operant	Reinforcing stimuli are emphasized	Not recognized except for self-reactivity	Self-monitoring, self-instruction, and self-evaluation	Modeling and reinforcement	Shaping behavior and fading adjunctive stimuli
Phenomenological	Self-actualization is emphasized	Emphasize role of self-concept	Self-worth and self-identity	Emphasize subjective perceptions of it	Development of the self-system
Information Processing	Motivation is not emphasized historically	Cognitive self-monitoring	Storage and transformation of information	Not emphasized except when transformed to information	Increases in capacity of system to transform information
Social Cognitive	Self-efficacy, outcome expectations, and goals are emphasized	Self-observation and self-recording	Self-observation, self-judgment and self-reactions	Modeling and enactive mastery experiences	Increases through social learning at for successive levels
Volitional	It is a precondition to volition based on one's expectancy/values	Action controlled rather than state controlled	Strategies to control cognition, motivation, and emotions	Volitional strategies to control distracting environments	As acquired ability to use volitional control strategies
Vygotskian	Not emphasized historically except for social context effects	Consciousness of learning in the Zone of Proximal Development	Egocentric and inner speech	Adult dialogue mediates internationalization of children's speech	Children acquire inner use of speech in a series of developmental levels
Constructivist	Resolution of cognitive conflict or a curiosity drive is emphasized	Metacognitive Monitoring	Constructing schemas, strategies, or personal theories	Historically social conflict or discovery learning are stressed	Development constrains children's acquisition of self-regulatory processes

Source: Zimmerman, 2001, p. 9

to memory and recall the information for future use. These methods may be thoughtful or may occur subconsciously. Motor reproduction processes include the learner's physical ability to perform the demonstrated task. Reinforcement and motivational processes vary based on the consequence of learning or not learning given the content or task and include vicarious reinforcements, internalized perceived benefits of the skill or knowledge, and self-reinforcements, evaluations of learning behavior (Schunk, 2001a).

While all four components vary with the individual, the fourth component of reinforcement and motivation comprise the subparts of self-regulated learning. These variables give the individual control of the social learning experience (Cross, 1991). Through self-regulation, the learner can process the reasons for participating in the learning activities and the consequences related to their level of participation (non-participation, poor participation, or active participation), and subsequent learning outcomes. Bandura (1976) argued that "persons can regulate their own behavior to some extent by visualizing self-generated consequences" (p. 392). Bandura further identified three distinct, yet interrelated, subprocesses of self-regulation: self-observation, self-judgment and self-reaction. The concept of self-efficacy, the self-knowledge that an individual can successfully accomplish a given task, is also imperative to the learning process (Bandura, 1997).

Self-regulation can viewed as a continuum in which individuals may demonstrate higher or lower self-regulatory behaviors based on their value of the learning, interest in the content, self-efficacy, and motivation (Pintrich, 2000). Schunk (2001a) argues that self-regulation is situational and context specific; consequently, learner self-regulation varies greatly from person to person and activity to activity. The Social Cognitive Model

of the Development of Self-Regulation Competence demonstrates the shift from external to internal sources of self-regulation (Schunk. The first two levels of the model, observational and emulative, are primarily influenced by social factors. During the observational level, learners observe models and process verbal descriptions of appropriate actions during lectures, demonstrations, discussions and through encouragement. At the emulative level, learners demonstrate performance capability but remain dependent on modeling and external feedback. During the self-control phase, level three, learners internalize the self-regulation strategy off of the modeled behavior. At level four, full self-regulation, learners have not only integrated the modeled behavior but have begun to modify strategies and make situational adjustments. In addition, learners who have achieved full self-regulation independently maintain their motivation and self-efficacy (Schunk).

In contrast to social learning theory, Piaget's stages of cognition help explain the way individual learners process, organize and recall information (James & Maher, 2004). Piaget viewed cognitive learning in relation to chronological age and proposed that humans progress through four distinct stages of cognitive development: Sensory-motor (birth to 2 years of age), pre-operational (2 to 6 years), operational (7 to 11 years) and formal or abstract (12 to 20 years) (Hockenberry & Wilson, 2007). Piaget purported that adults performing at formal or abstract level of cognition can think abstractly and work with hypothetical situations; however, age alone cannot indicate an adult's level of cognitive performance as many adults do not ever truly transition to abstract thinking.

Keefe's taxonomy integrated cognitive, physiological, and affective dimensions of learning in an effort to explain the individual variances which impact the learning

process (James & Maher, 2004). Affective dimensions include personality variances such as motivation, emotion, interest and value. These aspects of personality contribute to variances in individual self-regulation of learning. Keefe's taxonomy was foundational to the emergence of learning styles research. Kolb's *Learning Styles Inventory*, *Myers-Briggs Type Indicator*, the *Keirsey Temperament Sorter*, the *VARK Learning Preference Survey*, and the *Learning Combination Inventory* all provide learner's with information regarding their individual learning style and preferences. Individual understanding of one's personal learning style supports the learner's understanding of one's cognitive function and approach to learning. This knowledge is imperative for the self-regulated learner as this information is foundational to self-monitoring and self-regulation of the learning process (Keirns, 1999; Smedley, 2007). Garrison (1997) argued that self-regulation is a metacognitive process "which requires students to explore their own thought processes so as to evaluate the results of their actions and plan alternative pathways to success" (p. 18); thus, self-regulation is a primary construct of self-directed learning. Zimmerman (1995) further stressed that "it is one thing to possess metacognitive knowledge and skill but another thing to be able to self-regulate its use in the face of fatigue, stressors, or competing attractions" (p. 217).

Empirical studies exploring nursing student learning styles include Lapeyre's (1991) investigation comparing degree and non-degree student learning approaches in which Lapeyre reported that the goal attainment of a degree did not result in a difference in approach to learning in the two groups. Alkhasawneh, Mrayyan, Docherty, Alashram, and Yousef (2008) explored the use of problem-based learning techniques and student learning preferences as reported by the VARK Learning Styles Preference survey which

identified student learning preference in four distinct areas: visual, aural, read/write, kinesthetic. While most nursing students demonstrate a read/write preference, most reported a multimodal learning preference, meaning that they demonstrated a combined aptitude for learning in more than one modality. Alkhasawneh et al. (2008) concluded that nursing students had successful academic outcomes as long as the nurse educator provided various learning activities which supported the four preference areas.

In 1956 Benjamin Bloom and associates proposed the taxonomy of educational objectives in the cognitive domain wherein learning objectives were ranked from the lowest level to the highest level as follows: knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom, 1971). Anderson and Krathwohl (2001) offered a revision of Bloom's original taxonomy and included metacognitive knowledge, student knowledge of their own cognition and how they approach learning, as a type of knowledge; however, Anderson and Krathwohl posited that the act of self-regulation is a component of the cognitive process dimension. Justice and Dornan (2001) investigated the differences in metacognitive awareness between traditional age and non-traditional age college students and reported that while there was increased metacognition in mature students this did not translate to higher academic performance.

Academic Self-Regulation

Pintrich (2000) offers the following working definition of self-regulation learning:

> Self-regulated learning is an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their

> cognition, motivation, and behavior, guided and constrained by their goals and the contextual features of the environment. These self-regulatory activities can mediate the relationships between individuals and the context, and their overall achievement. (p. 453)

These processes can be focused on the attainment of a specific educational activity or can be supportive of the attainment of an educational goal, such as course grade or degree achievement (Zimmerman, Bonner & Kovach, 1996). Students who can self-regulate their learning behaviors are more likely to perform successfully than students with low self-regulation (Schunk, 1993).

While many educators view self-regulation as a set of skills, Zimmerman (1998) argues that "academic self-regulation is not a mental ability, such as intelligence, or an academic skill, such as reading proficiency; rather it is the self-directive process through which learners transfer their mental abilities into academic skills" (p. 1). Academic self-regulation requires learners to be "metacognitively, motivationally, and behaviorally" self-active in the entire learning process (Zimmerman, 2001; Zimmerman, Bandura, & Martinez-Pons, 1992). While the self-regulated learner does not learn in isolation, the individual takes primary responsibility for planning the learning experience, self-motivation, initiative, and persistence and is willing to modify learning strategies and develop new approaches as is necessitated by the learning challenge (Brookfield, 1994; Caffarella, 1993; Cassazza, 2006).

Zimmerman (1989) offered a triadic model demonstrating self-regulated functioning in three specific influence processes: personal, environmental, and behavioral (See Figure 3). This model reflects social cognitive theory and supports the

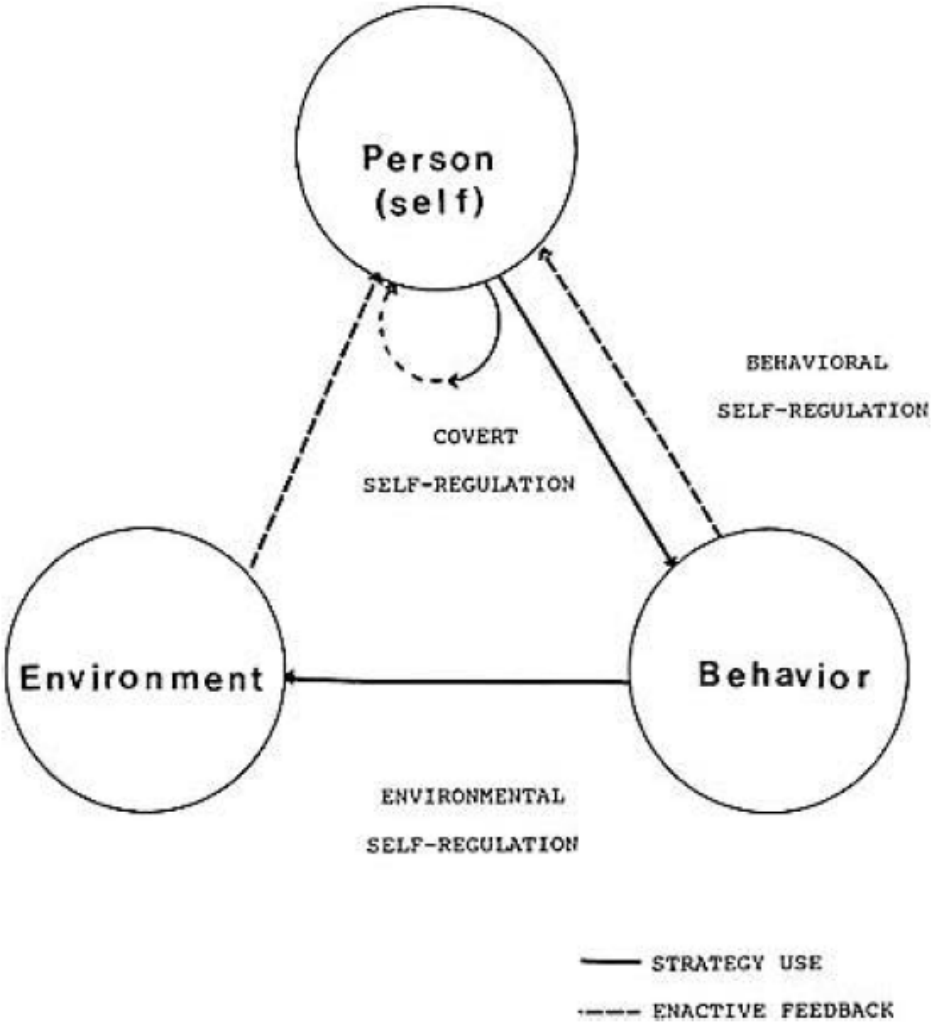

Figure 3. Triadic Analysis of Self-Regulated Functioning (Zimmerman, 1989, p. 330).

concept that self-regulated learning is a dynamic process which can be influenced by cognitive, emotional and environmental factors. Fluctuations between processes and variances in reciprocality exist within each self-directed learner. The personal processes includes self-efficacy, motivation, affect and interest in the content area or learning task while the environmental processes include managing the learning environment such that

environment is conducive to learning. Behavior processes include the cognitive strategies to organize, learn and recall the information. The triadic model further demonstrates the feedback loop resulting from self-reflection. Effective self-management of the learner's environmental, behavioral, and personal processes is the most visible indicator of a learner's degree of self-regulation (Zimmerman, 1989).

Zimmerman (1989) further proposed multiple self-regulated learning strategies which support the triadic model (See Figure 3). These strategies include self-evaluating, organizing and transforming learning resources and content to be learned, goal setting and planning, seeking information, keeping records and monitoring performance and progression, environmental structuring, self-consequating and rewarding, rehearsing and memorizing content, seeking social assistance, and reviewing the records.

Kanfer and Heggestad (1999) identified academic self-regulation as one of the four areas of individual variance which impact student success. The remaining areas include the student's preferred learning strategies, the way the student processes information, and the student's self-efficacy. Self-efficacy can be defined as student's belief in his or her capability to succeed at a given task (Bandura, 1997) and involves regulating one's environment, affective and cognitive processes, patterns of behavior and motivation (Bandura, 2000). A student who is self-efficacious is more open to try new things, less worried about making mistakes, and more willing to exert additional effort to succeed at a specific task. As a result, these students are more "persistent, experiment with learning strategies and have more initiative" (Svinicki, 2004, p. 207). With influence, effective learning strategies, and internalization of values, student self-efficacy can change over time.

There are four common general components of self-regulation theories: (a) self-regulated learners strive for improvement in academic learning and use specific strategies to support this improvement; (b) effective use of a feed-back loop of evaluation; (c) motivational differences exist between those who utilize self-regulation behaviors and those who don't; and (d) the regular use of self-regulation requires extra time and effort (Zimmerman & Schunk, 2001). Variances in these four distinct areas of self-regulation can be impacted by an individual's age, maturity level, and internal valuation of the content being learned.

Cassazza's (2006) review of the literature determined the following three principles exist in the construct of self-regulation: (a) Learners utilize self-regulated learning proactively manage learning by utilizing various adaptive strategies; (b) Learning is improved when there is a connection between learning outcomes and learning strategies; and (c) the act of setting learning goals leads to enhanced academic achievement. Schunk (1993) argued that students who successfully transition to college programs have adequate self-regulatory behaviors which include three components: goals, self-efficacy and learning strategies.

Multiple models of self-regulated learning exist. While it would be exhaustive to explain each model in detail, four common assumptions regarding learning and regulation in all models will be discussed. The first assumption, active constructive assumption, assumes all learners are "active, constructive participants in the learning process" (Pintrich, 2000, p. 452). Learners take information offered in the learning environment and link this information to previously internalized information to form personalized meaning, goals, and strategies. Second, potential for control, is the assumption that

learners have the ability to self-monitor their thought processes, motivation and behavior and the environment; however, it is not assumed that all learners utilize this self-monitoring ability. Third, goal assumption, assumes that learners set goals and self-regulate their efforts by monitoring thought processes, behavior, and motivation in effort to obtain the goal. The fourth assumption, mediation, recognizes the role of self-regulation of learner cognition, behavior and motivation in the facilitation of the dynamics of the individual, the learning context and the achievement of the goal (Pintrich, 2000).

A framework of the four specific phases of self-regulation serves to assist learners and educators in conceptualizing the process and the distinct steps (Pintrich, 2000). Phase 1 focuses on obtaining knowledge about the learning task and context, planning and goal setting. Phase 2 includes the self-monitoring and metacognitive awareness of the integration of self with the requirements of the task and context. Phase 3, the controlling phase, consists of efforts to self-regulate and manage the different aspects of the task or context. Phase 4 includes self-reflection and self-reaction. Phases 2 and 3 can meld into one another as self-monitoring, metacognition, and self-regulation all concern self-awareness and direction. Pintrich further breakdowns these phases into each step and includes appropriate expected action in the realms of cognition, motivation, behavior and context (See Table 3). These steps do not occur in linear fashion for all learners and some steps may occur synchronously. Self-efficacy, learner belief that they can successfully complete the task, operates during all four phases of self-regulation (Schunk & Ermter, 2000).

Table 3

Phases and Areas for Self-Regulated Learning

	Areas of Regulation			
Phases	*Cognition*	*Motivation/affect*	*Behavior*	*Context*
1. Forethought, planning & activation	Target goal setting	Goal orientation adoption	[Time and effort planning]	[Perceptions of task]
	Prior content knowledge activation	Efficacy judgments	[Planning for self-observations of behaviors]	[Perceptions of context]
	Metacognitive knowledge Activation	Ease of learning judgments ; perceptions of task difficulty Task value activation Interest activation		
2. Monitoring	Metacognitive awareness and monitoring of cognition	Awareness and monitoring of motivation and affect	Awareness and monitoring of effort, time use, need of help Self-observation of behavior	Monitoring changing task and context conditions
3. Control	Selection and adaptation of cognitive strategies for learning, thinking	Selection and adaptation of strategies for managing motivation and affect	Increase/decrease effort	Change or renegotiate task
			Persist, give up	
			Help-seeking behavior	Change or leave context
4. Reaction and reflection	Cognitive judgments	Affective reactions	Choice behavior	Evaluation of task
	Attributions	Attributions		Evaluation of context

Source: Pintrich, 2000, p. 454

Regulation of motivation and affect are important aspects of self-regulation and includes regulation of motivational beliefs, self-efficacy, personal interest and value in the task (Pintrich, 2000). Learner awareness of their motivation and their efforts to control their motivation directly impact learning outcomes. Learners make learning judgments concerning the degree of difficulty of an assignment or content area through metacognition, knowledge of their learning needs, preferred learning strategies in combination with self-efficacy. In addition, learner appreciation of the relevancy of the task and the value to future goals impacts academic motivation to participate and strive for successful learning outcomes. Learner desirability or interest in the content is also imperative. Conversely, learner anxiety and fear of failure can negatively impact learner interest and value (Pintrich).

Educators can enhance and promote learner self-efficacy, personal interest and value through the effective introduction of new content, linking current learning to future needs, and demonstrating personal value of the content presented and the tasks that students are asked to master (Svinicki, 2004). Educators can provide a pleasant, safe non-threatening learning environment which encourages social interaction among learners thus promoting learner belonging and self-worth; inversely, educators can disrupt the learning environment in effort to cause dissonance which can result in cognitive growth (Svinicki). Positive emotions, including pleasure and enjoyment of learning, enhance self-regulation, while negative emotions such as fear and anxiety require extrinsic support (Pekrun, Frenzel, Goetz, & Perry, 2007). Educators have the ability to increase academic motivation by modeling the value of a goal and can influence student goal orientation and value integration during every student-faculty interaction (Svinkcki).

Successful goal attainment does not automatically ensure the use of self-regulation strategies; however, internalization of the value of a goal enhances and sustains motivation (Bandura, 1997; Schunk, 2001b). Learner reflection and self-feedback during the learning process revealing positive learning outcomes can affirm student self-regulation strategies and thus increase motivation and self-efficacy; however, unexpected difficulty or task failure can negatively impact self-efficacy and motivation. Goal properties that support effective self-regulation include goal specificity, goal proximity and difficulty level (Bandura, 1986; Locke & Latham, 1990). Specific goals are easier to measure than non-specific goals and thus, can be more beneficial to motivation. Goal proximity refers to the short-term or long-term outcomes associated with goal attainment. Proximal goals are more motivating than distant goals because short-term goal attainment is quicker and movement toward the completion is more noticeable and demonstrates learning progress (Boekaerts,1995; Cervone, 1993). This concept supports breaking long-term tasks into smaller, more manageable segments.

The difficulty level or attainability of the goal should be appropriate to the learner's ability as a goal that is too easy or too hard does not motivate the learner. Goals should be challenging, but reachable, in order to enhance academic motivation. Locke and Latham (1990) reported that providing feedback increases goal commitment when the feedback focuses on self-improvement, challenge and mastery, and promotes self-efficacy. Challenging the learner by increasing the difficulty level of the learning while maintaining achievability typically results higher learner performance. Warkentin and Bol (1997) reported significant differences in self-regulatory variances in high achieving and low achieving students and determined that while most students experience difficulty

monitoring their personal efforts, lower achieving students tend to memorize content for immediate recall, not long-term future needs.

Locke and Latham (1990) purport that when goals are set by the learner, the learner is more committed to the task and performance is enhanced. If learner performance does not appear to be satisfactory in relation to goal achievement, dissatisfaction can occur which can lead to increased effort or failure resignation. Learners typically will continue at the learning activity if it is believed that success is possible. Once the goal is successfully reached and the learner has the positive reinforcement associated with success, the learner sets new goals and continues the process (Schunk, 2001b).

Multiple models of self-regulation exist. The Personal Responsibility Orientation model set forth by Brockett and Hiemstra (1991) places self-direction in learning as a overriding theme with two related sub-dimensions. Under the umbrella of self-direction exists the following two constructs: (a) self-directed learning which incorporates the concepts of the adult learner and teaching-learning process set forth by Knowles, and (b) learner self-direction which focuses on characteristics internal to the individual that "predisposes one toward taking primary responsibility" (p. 29).

The Effort Management Hierarchy model (Thomas & Rohwer, 1993) is based on four hierarchical levels of study activity. These activities include monitoring, self-regulation, planning and evaluating. Thomas and Rohwer purport that learner self-direction occurs in a continuum of activities which range from awareness of need to individual control of one's study efforts to include concentration, time and learning effectiveness. Regulation and remediation are key to self-directed learning.

Zimmerman's three-phase self-regulation model presents self-regulation as a cyclical process involving learner assessment and feedback of personal, behavioral, and environmental factors during three phases of the learning process: (a) the forethought phase during which goal setting and social modeling occur; (b) performance control during which the learner compares their performance to that of other learners and provides self-instruction regarding learning strategy; and (c) self-reflection, the stage of self-evaluation, resultant feedback, and self-reward for performance success (Schunk, 2001a).

Further discussion regarding self-regulated learning has focused on student interest in the subject-matter and the impact of affect on self-regulation and resultant end learning outcomes (Alexander, 1995; Boekaerts, 1995). Bruner (1964) advocated the collaboration of teacher, subject-matter specialist, and psychologist in the development of a curriculum, the learning pace, appropriate points of feedback, and types of feedback. Bruner further argued for the inclusion of multiple teaching strategies and learning activities to facilitate individual learning differences resulting from variations in interest, skills, ease of learning, and cognitive levels.

Additional empirical studies on adult academic self-regulation have focused on specific content areas such as computer skills (Schunk & Ertmer, 1999), reading (Barnett, 2000), writing (Hammann, 2005; Zimmerman, Bandura, & Martinez-Pons, 1992), medical training (Evensen, Salisbury-Glennon, & Glenn, 2001), and vocabulary acquisition (Tseng, Dornyei, & Schmitt, 2006); teaching methods such as the use of hypermedia (Azevedo & Cromley, 2004), case study-based instruction (Ertmer, Newby & MacDougall, 1996), problem-based learning (Evensen, Salisbury-Glennon, & Glenn);

and specific cohorts of students such as developmental students (Young & Ley, 2000), students with disabilities (Rubin, McCoach, McGuire, & Reis, 2003), first year college students, and graduate students. Much effort has focused on adult self-regulated learning related to distance education including Williams and Hellman (2004), Schmidt and Werner (2007), and Artino (2007).

The Role of Motivation in Academic Self-Regulation

While learning may take place in formal educational environments or in an individual's home, individuals participate in learning for different reasons. The reason individuals participate in learning is the core of academic motivational theory. Motivation is a major construct in the personal realm of self-regulation (Zimmerman, 1989). Most often, adults learn because they want to, not because some else wants them to learn (Slotnick, Pelton, Fuller, & Tabor, 1993); however, extrinsic and intrinsic motivators significantly impact adult learner outcomes. The literature is abundant regarding motivation in relation to self-regulation as it pertains to social behavior, healthcare management, workplace performance; however, this discussion will focus solely on academic self-regulation.

Extrinsic and intrinsic motivation can be viewed as the ends of a spectrum or continuum. All learners can be motivated to learn. Knowles (1980) addressed the adult learner's response to different motivators and recognized the value of extrinsic motivator (the desire for a better job, career progression, pay improvements, etc.); however, intrinsic motivators (increased quality of life, increased job satisfaction, increased self-esteem, etc.) are much more beneficial. Young adults are transitioning from external

motivators to internal motivators; however, many mature adults may still be primarily extrinsically motivated. Most learners are initially dependent on extrinsic motivation at the beginning of a learning activity (Bruner, 1964). As the learner develops an understanding of the value of the knowledge or content and interest increases, there may be a shift toward intrinsic motivation. In addition, as undergraduate students move into their major field of study, they progress on the continuum of motivation toward intrinsic motivation.

Miller explained the interrelatedness of socioeconomic status and participation in adult education by using Mazlow's theory of hierarchy of needs – basic needs (safety, survival, belonging, shelter, food) must be met before higher needs (recognition, achievement, self-realization) can be considered (Cross, 1981). Miller combined Mazlow's theory with Lewin's force field analysis theory to explain variances in education motivation in different socioeconomic groups. This theory explains why young adults in early independence seek out learning that will increase their stability and income and allow them to support a spouse and family. As these same learners age and the basic needs have been met, focus can shift to achieving status, enjoying learning, and working toward self-realization. This theory also demonstrates why parental obligations and job requirements override learner obligations (Long, 2004).

Tough, Abbey, and Orton (1982) suggested that the learner's conscious expectation of reward for learning exceeds the force of either subconscious or environmental factors and developed a learning model comprised of five stages: (a) engagement, (b) retention, (c) application, (d) gain of material reward (job promotion), and (e) gaining an symbolic reward (degree or certification) (Cross, 1981).

Wlodkowski (1985) reported that six major factors affect motivation to learn and argued that the motivational factors strongly affect how learners learn and what they learn. These factors include attitudes, needs, stimulation, emotion, competence, and reinforcement. Wlodkowski also summarized motivation to be based on the following four desires of adult learners: Success, volition, value, and enjoyment.

Multiple theories attempt to explain reasons why adults are motivated to participate in learning. These theories include the Expectancy-Valence Paradigm developed by Rubenson, the Congruence Model presented by Boshier, and Tough's Anticipated Benefits (Cross, 1981). All models recognize the existence of variances in learner self-regulation motivation specific to the level of extrinsic motivation or intrinsic motivation.

Intrinsic motivation can be defined as the innate desire to learn for the pleasure of learning (Cross, 1981). Intrinsically motivated learners find sincere pleasure in the learning task (Pintrich & Schunk, 1996), and typically have better learning outcomes than learners who are extrinsically motivated (Deci & Ryan, 1985; Knowles, 1984). Intrinsic motivators include the desire for increased job satisfaction, self-esteem, and increased quality of life. While learning occurs in the presence of both intrinsic and extrinsic motivation, tasks that are engaged with high levels of intrinsic motivation are more enjoyable and pleasurable for the learner. In addition, successful learning outcomes provide positive feedback into the motivation loop and increase intrinsic motivation which then results in increased interest and increased learning (Bandura, 1986).

Superficial or surface learning at the knowledge and comprehension levels is much more indicative of students who possess an extrinsic level of motivation while

deeper learning processes are demonstrated by learners who demonstrate an intrinsic level of motivation (Mansouri, Soltani, Rahemi, Nasab, Ayatollahi, Nekooeian, 2006; Pintrich, 2000). Walker, Greene and Mansell (2005) investigated the relationship of motivational characteristics of students and reported positive correlations between academics, self-efficacy, and intrinsic motivation related to meaningful cognitive engagement. Their study demonstrated that extrinsic motivation tends to predict superficial cognitive engagement. In addition, multiple quantitative research studies concerning intrinsic and extrinsic factors have been conducted with the majority reporting positive correlations between intrinsic motivation and academic success (Azevedo & Cromley, 2004; Black & Deci, 2000; Grolnick & Ryan, 1987; Ryan & Connell, 1989; Wissmann, J, 2002). Burton, Lydon, D'Alessandro and Koestner (2006) reported that presenting a learning activity as fun or pleasurable can increase student positive affect and can result in improved learning outcomes.

Self-determination theory is based on the distinct differences between intrinsic and extrinsic motivation and the spectrum of motivation that exists between these two constructs (Burton, Lydon, D'Alessandro, & Koestner, 2006; Ryan & Deci, 2000b). Internality and externality exist between these two extremes. Four levels or categories of motivation exist and can be conceptualized as a continuum (Svinicki, 2004). Movement from the lowest level to the highest level requires internalization of motivation. At the lowest level of motivation, controlled (external or total extrinsic motivation), the perceived locus of control is external. Learners participate in learning projects or activities for the external reward, such as pay. The learner moves into the next level, introjected motivation, as the motivation to perform the job well for approval of others

exceeds the reward of payment. Introjected motivation is more internalized than total total extrinsic motivation because the learner's motivation has become the approval of others as opposed to the reward associated with a grade.As the learner moves into the next level, identification, the learner recognizes the value of the learning to his or her future success. Autonomous (complete intrinsic motivation) exists when the learner integrates the values of the society into his or her value structure (Svinicki, 2004).

Deci and Ryan (1985) proposed a continuum of learning motivation which ranges from totally intrinsic motivation where motivation to learn is based on the enjoyment of knowing and the inherent satisfaction of gaining new knowledge to amotivation, a complete lack of any motivation. Deci and Ryan further offered three categories of external events which impact student motivation: (a) informational, regulation events which support learner autonomy and competence; (b) controlling, events which force control of the learner, restrict creativity and, thus, undermine intrinsic motivation; and (c) amotivation, events which convey inability to achieve mastery of the content which further undermines internal motivation.

Williams and Deci (1996) presented the Self-Determination Model as is applies to medical education (See Figure 4). They studied the impact of instructor orientation on medical student learning outcomes and approaches to delivery of medical care and partnership with patients; specifically, their research indicated that instructors who have a humanistic orientation, recognize learner differences, and allow individualization in support of adult learner autonomy contribute to greater conceptualization of the content and better psychological adjustment during the learning experience. This is turn

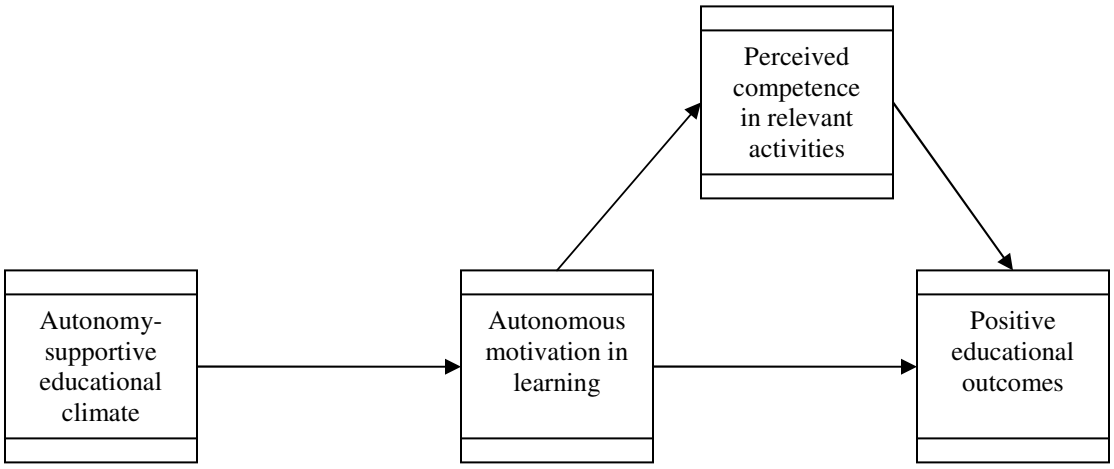

Figure 4. Self-Determination Model Applied to Medical Education (Williams & Deci, 1998, p. 304).

contributes to the medical student integration of a humanistic, collaborative approach to patient management.

Ryan and Deci (2000b) further developed the Self-Determination Continuum and provided an updated model which includes the related regulatory styles, loci of causality and corresponding processes (See Figure 5). This continuum further categorizes extrinsic motivation into four levels: external regulation, introjected regulation, identified regulation, and integrated regulation. Within this model identified regulation is considered somewhat internalized where the learner recognizes the personal importance of the content and consciously values the learning and integrated regulation is viewed as internalized with the learner demonstrating awareness, congruence, and synthesis with self.

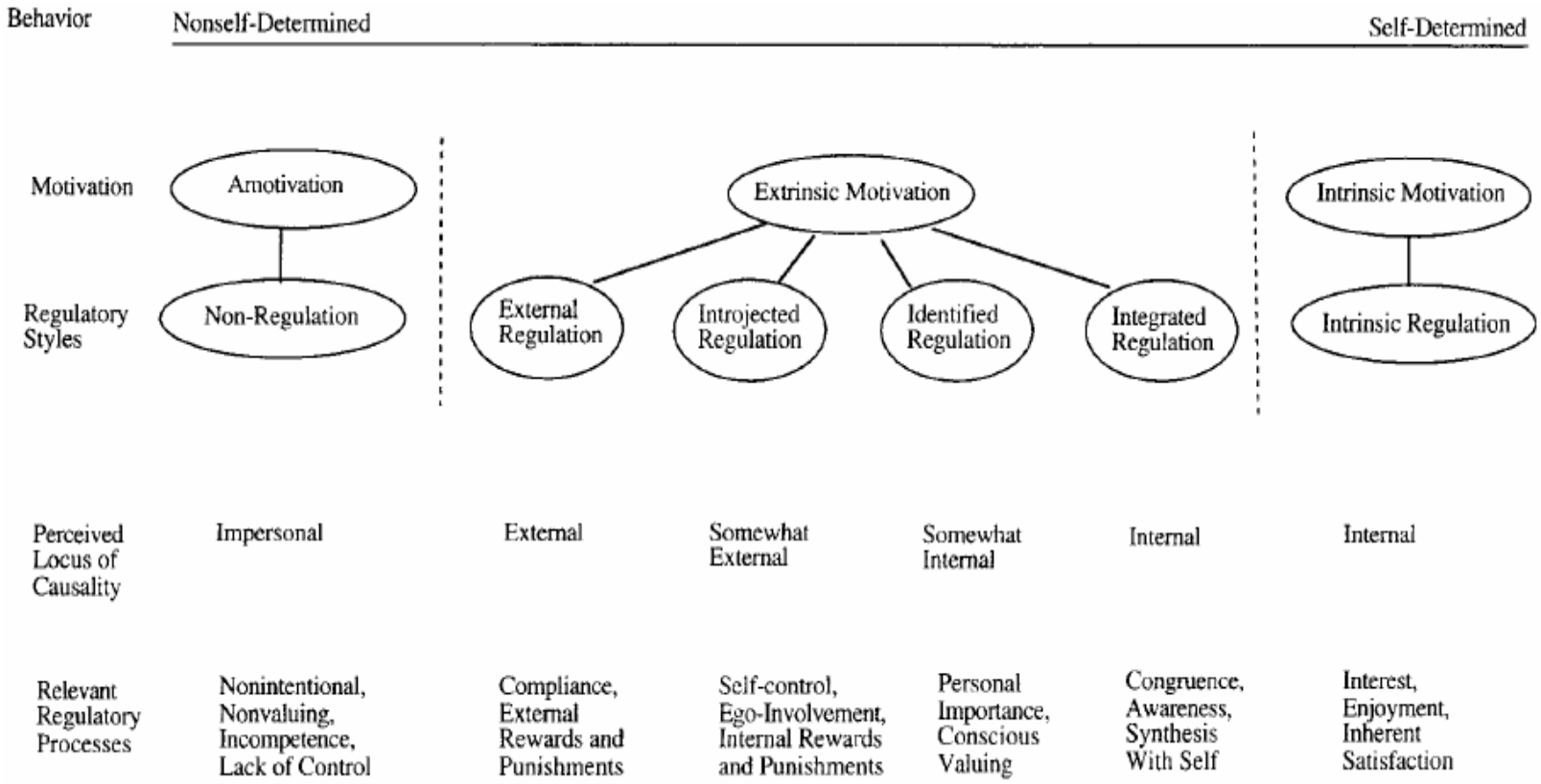

Figure 5. The Self-Determination Continuum Showing Types of Motivation with Their Regulatory Styles, Loci of Causality, and Corresponding Processes (Ryan & Deci, 2000b, p. 72).

Learners who are autonomously regulated report psychological benefits such as enjoyment of learning, better task performance, increased self-efficacy, increased mood, positive coping strategies, better learning outcomes, and better behavioral performance (Black & Deci, 2000; Grolnick & Ryan, 1987; Ryan & Connell, 1989; Zimmerman, 1990). Burton, Lydon, D'Alessandro, and Koestner (2006) suggested that intrinsic motivation and the accompanying interest and enthusiasm predict academic performance.

Bye, Pushkar and Conway (2007) investigated differences in motivation, interest and positive affect in two distinctly different student populations, traditional and non-traditional students, and reported that interest and age were significant predictors of intrinsic motivation to learn. Justice and Dornan (2001) found that while variances in metacognition exist between traditional age and non-traditional age college students, "higher education will need to respond to differences in motivation and learning processes of nontraditional-age students" (p. 248).

The variable of age as a predictor of self-regulatory behaviors such as cognitive maturity, use of learning strategies, metacognition, and motivation have revealed that older undergraduate students are more self-aware, demonstrate greater self-regulation, and report both intrinsic and extrinsic motivation (Alexander, Murphy, Woods, Duhon & Parker, 1997; Gadzella, Stephens, & Baloglu, 2002; Justice & Dornan, 2001; Kasworm, 2003). Gender differences have been found to relate to variances in motivation as a result of variation in enjoyment of the learning task and variations in response to reward contingencies; however, these variations are common across all individuals and have not been directly linked to an individual's gender (Deci, Mims, & Koestner, 1983).

Dornan, Hadfield, Brown, Boshuizen, and Scherpbier (2005) also conducted research on self-directed learning of medical students in the clinical environment and report that academic motivation is increased when the learner has academic support from the educator (Dornan, Hadfield, Brown, Boshuizen, & Scherpbier, 2005). This support can be provided in the following ways multiple venues: (a) organizational support, (b) pedagogic support, and (c) affective support. Organizational support is comprised of providing opportunities for student learning in an optimal learning environment. Pedagogic support includes guiding the learning in the self-determination of learning objectives, learning strategies, scholastic feedback, and instructional guidance and explanation of content. Affective support consists of supporting students as they transition to a more independent and self-directed learning style, nurturing the student through the process and providing appropriate feedback.

Svinicki (2004) reports multiple opportunities for educators to support academic motivational progression from controlled to autonomous as proposed in self-determination theory. Educators can ensure that learners are provided opportunities to participate in the decision making process concerning learning approaches and strategies and learners should be granted some control of their work. Collaborating with students to develop course assignments and allowing individualization of course activities support learner autonomy. Educators should strive to model the values that they wish their students to exhibit and base course policies on these values. In addition, timely feedback and encouragement are foundational to the promotion of learner autonomy.

Multiple empirical studies exist regarding educational self-regulation and include extensive exploration and investigation of multiple concepts related to motivation to

include the impact of rewards, sharing of knowledge, goal orientation, the importance of parental support, and the role of faculty (Black & Deci, 2000; Cameron & Pierce, 1994; Deci, 1971; Deci & Ryan, 1985; Harder, 2008; Levesque, Zuehlke, Stanek, & Ryan, 2004; Niemiec, Lynch, Vansteenkiste, Bernstein, Deci, & Ryan, 2006; Ryan & Deci, 2006; Ryan, Koestner, & Deci, 1991; Ryan, Mims, & Koestner, 1983; Vansteenkiste, Lens, & Deci, 2006; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004; Wild, Enzle, Nix, & Deci, 1997). In addition, Cameron (2001) and Deci, Koestner, and Ryan (2001) both provide extensive comprehensive meta-analyses concerning the role of extrinsic rewards in cognitive evaluation theory.

A review of the literature regarding the role of motivation in self-regulation related to self-determination regarding the management of behavioral constructs, psychological health, social development, and physical health management revealed an extensive amount of theoretical offerings (Cameron, 2001; Deci & Ryan, 2000a; Deci & Ryan, 2000b; Deci, Schwartz, Sheinman, & Ryan, 1981; Levesque & Pelletier, 2003; Ryan & Deci, 2000a). In addition, a multitude of empirical investigations have been conducted exploring self-determination as it relates to the previously mentioned topics. These studies are not discussed here since this research is focused on academic self-regulation.

Review of Nursing Education Literature

The literature revealed a minimal number of studies focused on motivation in nursing education and practice with two studies focusing on nurse motivation to persist with continuing education requirements after degree attainment (Bahn, 2007; Cooley,

2008). Both investigations found that nurses pursue continuing education in an effort to stay current, compete with higher educated nurses, and provide safe client care. An additional benefit was the enhancement of their professional self-worth by participating in the continuing education offerings. Välimäki, Itkonen, Joutsela, Koistinen, Laine, Paimensalo, Siiskonen, Suikkanen, Ylitörmänen, Ylönon, and Helenius (1999) reported that while nursing students valued self-determination and were willing to exercise self-determination in nursing studies, these same students did not demonstrate self-directed learning behaviors and reported that nurse educators did not support the use of these behaviors.

McEwan and Goldenberg (1999) explored achievement motivation, anxiety, and academic success in first year graduate nursing students and reported that younger students were more achievement motivated than older students. Research findings suggested that students who were in school to secure employment had a greater anxiety level and more fear of failure with a lower achievement motivation than older students who were currently employed but in school to increase their economic status.

Green (1987) found that most graduate nursing students are female, between 30 and 40 years of age, and have multiple role demands which can result in increased stress and poor academic performance. Thompson (1992) reported that multiple role requirements of older students to include that of parent, spouse and student, increased the stress of the academic experience. Lopez (1992) explored the impact of demographic, academic, and personal variables on nursing student attrition and reported that nursing grades, family support and academic support are supporting factors which limit nursing student attrition. Vincent (1992) also reported that a grade point average of 3.0 or more in

the nursing major courses was predictive of degree attainment. Further research by Smedley (2007) reported self-directed learner readiness increases with life experience; consequently, older students typically demonstrate more tendencies toward self-directed learning than younger students. Smedley asserts that nursing curricula must include both teacher-directed and student-directed learning activities.

Lee (2007) discussed nursing student use of academic help seeking behaviors and explored theory related to self-efficacy, motivation and self-regulation interspersed with anecdotal comments and provide suggestions for nurse educators and academic administrators to promote nursing student help seeking behaviors in three specific areas – culture, communication, and commitment. Ofori and Charlton (2002) reported that help seeking behaviors prove to be more predictive of academic success than entry qualifications; in addition, older students tend to demonstrate more willingness to seek out support which results in overall higher academic success. Additional empirical research suggests that nursing students with a greater self-reported interest in the content utilize a deep approach to learning which results in increased academic success (Mansouri, Soltani, Rahemi, Nasab, Ayatollahi, Nekooeian, 2006).

Tutor (2006) explored associate degree nursing student motivational factors and reported that academic self-efficacy, achievement goal orientation, and self-regulation of learning were significant predictors of academic success. This finding supports the need for faculty support of both self-efficacy and self-regulation learning strategies as ways to support positive student learning outcomes and limit attrition. Nilsson and Stomberg (2008) surveyed Swedish nursing student learning motivation throughout three years of nursing study and reported that extrinsic motivators such as teacher involvement,

curricular design, social relationships, and successful nursing certification were more common than the intrinsic motivation of the pleasure of learning. Nilsson and Stomberg urge further investigation utilizing a more specific measurement tool.

Myers (1999) compared the learning strategies of associate degree nursing students and baccalaureate degree nursing students to determine variances in the use of metacognition, metamotivation, metamemory, critical thinking, and resource management and considered multiple variables to include age, gender, previous degree, previous health care experience, previous work experience, martial status, residence conditions and location, and grade point average. While the sample size was small (34 associate degree students and 19 baccalaureate students), the findings support the conclusion that associate degree students utilized metamotivation learning strategies more frequently than baccalaureate students. Myers asserts that associate degree nurses may have demonstrated higher intrinsic motivation because the pursuit of a nursing degree would help to solve an acute problem such as the need for financial gain or single parenting demands. In addition, Myers offers the explanation that baccalaureate students are typically younger and most sought degrees in nursing due to the "extrinsic value of employment pursuits and monetary rewards" (1999, p. 92).

Myers (1999) recommended that future efforts focus on the intrinsic reasons for choosing a career in nursing, such as caring for others and contributing to society and argues that the modification of internal values "internal values must be changed before outward motivation can be exhibited" (p. 94). Myers further suggests that kindergarten children be introduced to hospitals and visit the sick and infirmed in an effort to promote this intrinsic valuation of caring for the ill. While this is a novel idea, intrinsic motivation

is much more than seeking nursing as a career to satisfy altruistic desires to serve the sick. Nursing is a demanding scientific educational discipline and students should be encouraged to recognize that altruistic desires serve to promote motivation, but this motivation can waiver during periods of stress and fear, as reported by McEwan and Goldenberg (1999).

Walker et al. (2007) explored the differences in student motivation for learning between second-degree and traditional nursing students and reported that second-degree students, regardless of age, had higher intrinsic motivation; however, these same students reported a greater desire for faculty guidance and organized classroom activities and placed a higher importance on the final course grade than traditional nursing students. Hudson (1992) investigated why individuals pursue graduate nursing degrees in relation to the expectancy–valence theory, cognitive motivation theory, and multiple independent variables including age, incentive, enrollment statues, and grade point average and determined that no correlation existed. The study found that the independent variables were not predictors of incentive for graduate nursing students. Hudson recommends improving the measurement tool and further investigation to determine whether incentives can be found to be significant predictors of academic success or attrition.

Delaney and Piscopo (2004) investigated associate degree nurses' motivation to obtain a baccalaureate nursing degrees and determined that multiple factors serve as motivation for further degree attainment including the desire to compete in the work environment, experience professional advancement, and personal growth. Barriers to continuing academic pursuit included family and work demands, role conflict, financial

concerns, and the lack a strong support system (Birks, Chapman, & Francis, 2006; Campaniello, 1988; Lengacher, 1993; Thompson, 1992; Zuzelo, 2001).

Research has been conducted concerning the use of hybrid learning environments, those which integrate web-based support with traditional classroom management approaches, in nursing education. Kumrow (2005) examined the predictability of five self-regulatory resource management strategies in determining nursing student academic success within a hybrid learning environment. The management strategies explored included time management, study environment, effort regulation, help seeking, and peer learning. While the sample size was limited to 31, Kumrow asserts the importance of help seeking behaviors in the successful completion of a web-based hybrid course and encourages nurse educators of current and future web-based courses to provide sufficient help-seeking pathways to ensure that the student does not learn in isolation and suggests that further research efforts focus on the cognitive, metacognitive, and motivational aspects of self-regulation theory and how these other elements predict academic success in web-based hybrid courses.

Lemcool (2007) investigated the impact of coaching on the use of self-regulated learning strategies on nursing student academic performance and attitudes toward self-regulated learning strategies. Again, the sample size was rather small (26 with 13 participants in the experimental group and 13 participants in the control group) which Lemcool contributes to the resultant lack of significance; however, Lemcool argues that high-academic achieving students utilize self-regulated learning strategies and that the study should be replicated with an increased sample size to determine if coaching does in fact promote increased use of self-regulation learning strategies.

Academic Motivation Measurement Tools

Additional learning motivation measurement tools are available. The Motivated Strategies for Learning Questionnaire (MLSQ) which consists of an 81-item self-reported survey which provides information concerning student goal and value beliefs, skill requirements, assessment anxiety and cognitive and metacognitive learning strategies specific to a single course (Artino, 2007; Pintrich, Smith, Garcia, & McKeachie, 1993). Pintrich, Smith, Garcia, McKeachie (1991) reported research conducted with the MSLQ indicates that traditional students demonstrate higher extrinsic goal orientation than non-traditional students. Vallerand et al. (1992) proposed the Echelle de Motivation in Education, the French precursor to the English version named the Academic Motivation Scale, in an effort to further explore three proposed subcategories of intrinsic motivation: (a) intrinsic motivation to know, (b) intrinsic motivation to accomplish tasks, and (c) intrinsic motivation to experience stimulation. Additional literature focuses on the validity of this instrument and possible future uses of the Academic Motivation Scale to further the understanding of the impacting factors and the peculiarities of intrinsic motivation (Vallerand et al., 1993)

Ryan and Connell (1989) developed the Academic Self-Regulation Scale which has been used for assessing the level of autonomous regulation in children and has been modified for students with learning disabilities. This measurement tool is comprised of four questions regarding student reasons for completing various learning behaviors including homework, classwork, asking questions in class, and general overall school performance. Each question is followed by multiple responses which can be classified

into one of the four self-regulation categories: external regulation, introjected regulation, identified regulation, and intrinsic motivation.

The Learning Self-Regulation Questionnaire (LSRQ), designed for use with adult learners, assesses learning motivation on two scales, controlled regulation (external regulation or introjected regulation) and autonomous regulation (identified regulation or intrinsic regulation). While these levels of regulation are categorized under external motivation, the differentiation of academic self-regulation between these two categories serves as the transitional point as the learner moves from extrinsic to intrinsic motivation (Ryan & Deci, 2000a). This measurement tool has been used to assess academic self-regulation in a particular college courses such as organic chemistry (Williams & Deci, 1996) and organ systems (Black & Deci, 2000). Scoring can be based on the two scales, autonomous regulation and controlled regulation, or a Relative Autonomy Index can be calculated by subtracting the controlled subscale *z*-score from the autonomous subscale *z*-score. Previous studies report the following alpha reliabilities for the two subscales: approximately 0.75 for controlled regulation and 0.80 for autonomous regulation (Black & Deci; Williams & Deci). This measurement tool will be used for this research project.

Multiple research studies have investigated the variable of age as a predictor of self-regulatory behaviors such as cognitive maturity, use of learning strategies, metacognition, and motivation and reported that older undergraduate students demonstrate more self-awareness, greater self-regulation, and both intrinsic and extrinsic motivation (Alexander, Murphy, Woods, Duhon & Parker, 1997; Gadzella, Stephens, & Baloglu, 2002; Justice & Dornan, 2001; Kasworm, 2003); however, none of these studies have investigated the differences of academic self-regulation between different groups of

nursing students, specifically previous degree nurses seeking a baccalaureate degree and traditional baccalaureate nursing students. The different reasons individuals have for participating in learning form the basis of motivation variances in adult learners (Cross, 1981).

August-Brady (2005) investigated the effect of metacognitive intervention on baccalaureate nursing student academic self-regulation and reported educators must understand student approaches to learning and self-regulation of learning. In addition, educators must understand the effectiveness of teaching practices on self-regulated learning development. August-Brady encouraged further nursing education research in this specific area. Wissmann (2002) explored nursing student metacognition and recognized a strong relationship between nursing student learning effort and interest and motivation; furthermore, Wissmann reported that motivation was directly impacted by nursing students' personal goals for adequate performance and the importance of current content to future nursing practice.

Alexander and Murphy (1999) recognize the need for further multidimensional research on individual adult learner variances and the impact of motivational factors on student success in the formal learning environment. Bye, Pushkar, and Conway (2007) argued that further study is warranted to determine if there is a correlation between age, degree persistence, and intrinsic motivation. Understanding the impact of life factors on variances in academic motivation can facilitate educators in the development of more effective instructional environments and learning activities.

Summary

The paradigm shift from a teacher-centered teaching to learner-centered learning requires educators to understand the uniqueness of different nursing student subgroups and how to best serve these groups of students during the academic development of critical thinking and self-directed learning strategies (Billings & Halstead, 2005; Cowman, 1998; Magena & Chabeli, 2005; Välimäki, Itkonen, Joutsela, Koistinen, Laine, Paimensalo, Siiskonen, Suikkanen, Ylitörmänen, Ylönon, & Helenius, 1999). Nurse educators must consider the unique needs of the individual student and the theoretical constructs of self-directed learning, self-regulation, and learning motivation and the use of educational strategies and support methods to promote and enhance student integration of content value and progression toward intrinsic motivation.

The specific problem investigated in this study is the variance of academic self-regulation and the possible impact of various independent factors on the individual motivation. Chapter III will present the research design and data analysis. The results of the research study will be discussed in Chapter IV. Chapter V will conclude with a summary and discussion, implications of the findings, recommendations for use of the findings, and a conclusion based on the study findings.

CHAPTER III

METHODS

The purpose of this study was to determine if there was a difference in self-regulation behaviors (autonomous vs. controlled) in two distinct groups of nursing students: (a) traditional baccalaureate nursing students, and (b) non-traditional baccalaureate nursing students (licensed nurses who have previously completed a diploma or associate degree nursing program and are returning to nursing school to obtain a baccalaureate degree). Research participants were nursing students in a baccalaureate nursing program at one south-eastern public Alabama university.

This chapter presents the methods used in this research study to include the purpose and design of the study, population and sample selection, instrument validity and reliability, and data collection strategies. The chapter will conclude with a discussion of the data analysis process.

Design of the Study

This was a cross-sectional study focused on the identification of academic self-regulation differences in two distinct groups of nursing students wherein the data was collected during a single encounter with each participant in an effort to describe the differences among groups of participants (Houser, 2008). This type of research design is beneficial when attempting to solicit data on attitudes, behaviors, and demographic data

from a large number of participants as it is relatively inexpensive, does not involve an intervention or treatment, and has limited loss of subjects from attrition. Disadvantages to this type of research include the inability to measure change over time due to the single collection of data and difficulty determining causal association. Cross-sectional studies are often used as a pilot study prior to conducting longitudinal research (Houser).

The primary independent variable of this study was student designation as either a TBSN student or NTBSN student. Additional independent variables of interest included demographic data collected by participant completion of the Demographic Data Collection Tool (DDCT). The dependent variable was nursing student's academic self-regulation as operationalized by the autonomous regulation subscale (ARS) score and the controlled regulation subscale (CRS) score as determined from the LSRQ questionnaire.

Research Questions

The research questions for this study were:

1. Is there a statistically significant difference in academic self-regulation behaviors (autonomous versus controlled) in the following two distinct groups of nursing students: Traditional baccalaureate nursing students and non-traditional baccalaureate nursing students (licensed nurses who have previously completed a diploma or associate degree nursing program and are returning to nursing school to obtain a baccalaureate degree)?
2. Are there significant differences in the following demographic characteristics between the same two groups of baccalaureate nursing students: Age, sex, ethnicity, marital status, family structure, number of dependent children, previous

healthcare experience, current GPA, number of hours in independent study per week, number of hours studying collaboratively per week, number of work hours per week, and number of years since previous degree?

Sampling

The sample studied consisted of all enrolled nursing students enrolled in a baccalaureate nursing program and included two groups: (a) traditional BSN students, and (b) non-traditional baccalaureate nursing students (students who are licensed nurses, have previously completed a diploma or associate degree nursing program, and are returning to academia to obtain a baccalaureate degree). The university selected for this study was a small southeastern university established in 1967 with an enrollment of 5,124 undergraduate and graduate students. This university offers degrees in Business, Education, Liberal Arts, Nursing and Science. The average student age is 25 with over one third of the student body comprised of students 24 years or older. Approximately 80% of the students are employed part time or full time and many commute to campus (Auburn University Montgomery, 2008).

The sample was a non-probability convenience sample of available students enrolled in the nursing program. Criteria for participant selection included enrollment in upper division nursing courses. All enrolled nursing students were invited to participate in the study on a voluntary basis. Power analysis was not conducted prior to study given; however, the use of 100 or more subjects supports the generalizability of the findings (Houser, 2008). The minimum number of participants was set at 100. The initial sample

consisted of a total of 215 participants; however, fifteen participants did not complete all aspects of the DDCT and these subjects' contributions were not included in the sample.

The final sample comprised 200 participants with 149 traditional baccalaureate nursing students (74.5%) and 51 non-traditional baccalaureate students (25.5%). The age range of the participants was from 19 to 55 years with a mean age of 27.79 years, mode of 21 years, median of 24 years, and a standard deviation of 8.44. The sample included 154 Caucasians (77%), 37 African-Americans (18.5%), three Hispanics (1.5%), two Asians (1%), and four participants indicated "other" (2%). The 168 participants (84%) were female and 32 participants (16%) were male.

Study Variables

The primary independent variable of this study was student type which consisted of TBSN and NTBNSD students. The dependent variable was nursing student academic self-regulation as operationalized by the total scores of the responses on the LSRQ survey. Additional independent variables of interest were collected through use of the DDCT.

Instrumentation

The Learning Self-Regulation Questionnaire (LSRQ), originally designed by Williams and Deci (1996) to assess academic self-regulation in a medical school course, was used in this study following minor modification to reflect studies in the field of nursing. This tool has been used in various forms in multiple research studies (Black & Deci, 2000; Ryan & Connell, 1989; Williams & Deci, 1996). Permission to use and

modify the LSRQ for this research was obtained from Deci (personal communication, November 10, 2007, see Appendix C).

The LSRQ is a 14-item questionnaire (see Appendix A) which assessed academic self-regulation on two scales, controlled regulation and autonomous regulation. Three primary questions (A, B, & C) were presented with multiple response choices (1-14) to which the respondent indicated the likelihood of that choice using a Likert-type response with answer choices ranging from 1 indicating "not at all true" to 7 indicating "very true." Participant responses were tallied for two subscales: autonomous regulation and controlled regulation. The autonomous regulation subscale score was determined by averaging the answers to the following questions: 1, 3, 6, 9, 11, 13, and 14. The controlled regulation subscale score required to averaging of responses to questions 2, 4, 5, 7, 8, 10, and 12.

Instrument validity refers to the strength of the survey tool to measure what is intended to be measured (Polit & Hungler, 1999). The instrument validity of the LSRQ was ensured through the review of previous published studies which used this research tool and reported good internal consistency and construct validity for this research instrument. The original instrument was used to by Ryan and Connell (1989) to assess learning autonomy in children and was later modified twice by Williams and Deci (1996) to reflect differently curriculum content for use with college students. Williams and Deci reported strong validity for both modified versions of this tool. In addition, Black and Deci (2000) reported construct validity for the LSRQ. This instrument was slightly modified to reflect nursing curriculum similar to the modifications in previous studies.

Reliability refers to the consistency of a measurement tool in measuring a particular attribute (Polit & Beck, 2006). When determining instrument reliability, the instrument should be examined for stability and internal consistency. Stability of an instrument examining a psychosocial construct such as academic self-regulation or learning style preference is questionable. The LSRQ is similar to the VARK Questionnaire which helps students determine their preference for receiving, giving, and processing information as these types of instruments are not designed to be "reliable in terms of consistency of scores of a long period of time" (Fleming, 2006). While test-retest reliability procedures support instrument stability, test-retest methods are not reliable when assessing stability of the instrument due to multiple factors which may impact participant responses such as attitude and mood differences and experience which may have occurred between the two measurements (Polit & Beck).

Internal consistency, the reliability of the LSRQ subscales to measure the expected characteristics, autonomous regulation and controlled regulation, is supported by reviewing the reported Cronbach's alpha reliabilites for the instrument from previous studies. Previous studies report the alpha reliabilities ranging from 0.75 to 0.80 for autonomous regulation subscale and 0.67 to 0.75 for controlled regulation subscale (Black & Deci, 2000; Williams & Deci, 1996).

Since this questionnaire was modified to reflect nursing curricula and questions were generalized to learning efforts related to all nursing courses, not just one specific course, additional factorial analysis was required. The reliability of survey tools utilizing a Likert scale format producing interval and ratio measures can be determined by performing a Cronbach's alpha test of internal consistency (LoBiondo-Wood & Haber,

2006). The desired score of 0.70 or greater on a scale of 0 to 1.0 demonstrates survey tool reliability. The reliability of the modified LSRQ was verified with a reported Cronbach's alpha on the autonomous regulation subscale and the controlled regulation subscale were .768 and .725 respectively.

The DDCT (see Appendix B) was used to collect the following data: (a) student classification (nominal scale as TBNS or NTBNS); (b) sex (nominal scale); (c) age (interval scale); ethnicity; (d) marital status (single, married, divorced, widowed); (e) family unit (two parent family, single parent family, or no children); (f) number of dependent children; (g) previous healthcare experience; (h) current GPA; (i) number of hours spent independently on school work per week; (j) number of hours spent in collaboration on school work per week; (k) hours employed per week; (l) years since previous degree; and (m) previous degree GPA. The study demographic variable results of the DDCT are presented in Tables 4-7.

Procedures

Permission to utilize and modify the original LSRQ was obtained from Deci (see Appendix C). The dean of the Auburn University Montgomery School of Nursing granted the researcher permission to conduct the research (See Appendix D). The Auburn University Montgomery Institutional Review Board granted approval of the research study and Auburn University Institutional Review Board also approved the research study as the principal investigator was conducting the research to satisfy degree requirements as a graduate student at Auburn University (see Appendices E & F). The researcher contacted faculty within the School of Nursing to coordinate collection dates.

Table 4

Study Variables Including Sex, Ethnicity, Marital Status, & Family Structure

Variable	TBNS		NTBNS	
	n	%	*n*	%
SEX				
Female	129	86.6	39	76.5
Male	20	13.4	12	23.5
ETHNICITY				
Caucasian	118	79.2	36	70.6
African-American	22	14.8	15	29.4
Hispanic	3	2.0	0	0.0
Asian	2	1.3	0	0.0
Other	4	2.7	0	0.0
MARTIAL STATUS				
Single	108	72.5	11	21.6
Married	31	21.0	33	64.7
Divorced	10	6.5	7	13.7
Widowed	0	0.0	0	0.0
FAMILY STRUCTURE				
No children	111	74.5	12	23.5
Two-parent family	26	17.5	33	64.7
One-parent family	12	8.0	6	11.8

N = 200

Table 5

Study Variables Including Number of Dependent Children, Previous Healthcare Experience, & Current GPA

Variable	TBNS		NTBNS	
	n	%	*n*	%
NUMBER OF DEPENDENT CHILDREN				
None	110	73.8	14	27.5
One	20	13.4	16	31.3
Two	11	7.4	19	37.2
Three	6	4.1	1	2.0
Four	1	0.6	1	2.0
Five	1	0.6	0	0.0
PREVIOUS HEALTHCARE EXPERIENCE				
Yes	56	37.6	51	100
No	93	62.4	0	0.0
CURRENT GPA				
2.0 – 2.49	1	0.6	0	0.0
2.5 – 2.99	31	21.0	8	15.7
3.0 – 3.49	74	49.7	21	41.2
3.5 – 4.0	43	28.7	22	43.1

N = 200

Table 6

Study Variables Including Number of Independent Study Hours & Collaborative Study Hours per Week

Variable	TBNS		NTBNS	
	n	%	*n*	%
# OF HOURS SPENT INDEPENDENTLY ON SCHOOL WORK PER WEEK				
<5	2	1.3	2	3.9
6 to 10	14	9.4	7	13.7
11 to 15	30	20.1	8	15.7
16 to 20	46	30.8	13	25.5
21 to 25	22	14.8	7	13.7
26 to 30	17	11.4	6	11.8
> 30	18	12.1	8	15.7
# OF HOURS SPENT IN COLLABORATION ON SCHOOL WORK PER WEEK				
<5	46	30.1	15	29.4
6 to 10	32	21.4	11	21.6
11 to 15	18	12.1	10	19.6
16 to 20	14	9.4	5	9.8
21 to 25	11	7.4	4	7.8
26 to 30	10	6.7	4	7.8
> 30	18	12.1	2	3.9

N = 200

Table 7

Study Variables Including Number of Hours Employed per Week & Years Since Previous Degree

Variable	TBNS		NTBNS	
	n	%	*n*	%
# OF HOURS EMPLOYED PER WEEK				
0	80	53.7	2	3.9
1 to 10	15	10.1	0	0.0
11 to 20	40	26.8	4	7.8
21 to 30	11	7.4	2	3.9
31 to 40	3	2.0	42	82.4
> 40	0	0.0	1	2.0
YEARS SINCE PREVIOUS DEGREE				
1 to 3 years	17	11.5	15	29.4
4 to 5 years	20	13.4	16	31.3
6 to 10 years	8	5.3	17	33.4
11 to 15 years	0	0.0	3	5.9
>15 years	0	0.0	0	0.0
No previous degree	104	69.8	0	0.0

N = 200

Students were approached at the end of class time. The Recruitment Script (see Appendix G) was read to each student group by the principal investigator which provided an overview of the research study and invited students to participate in the study on a voluntary basis. The researcher was course faculty for two groups of participating students; consequently, in an effort to limit risk and discomfort related to coercion, a colleague agreed to support this research effort by conducting the data collection portion of the research for these two groups. This required the use of an alternative recruitment script (see Appendix H). In addition to the Recruitment Script, each potential participant was provided an Information Letter which reiterated the information provided in the recruitment script (see Appendix I).

There was no direct compensation for participants involved in this research study. Participation was strictly voluntary with participants being fully aware that refusal to participate was acceptable. Participants were advised to withdraw from the study prior to completing the requested LSRQ and DDCT by simply not returning the two surveys. Participants were further informed that once these tools were collected, the participant's specific response tool would not be retrievable as it would not have identifiable information on it. The average time to complete the data tool was five minutes.

There were minimal risks associated with study participation. The primary identified risk was that of a breach of confidentiality. This was addressed by the use of anonymous, uncoded data and limited access to the data by only the researcher and faculty sponsor. Another possible risk was psychological or social discomforts resulting from the social pressure to participate to please the researcher or to be part of the social group. The research tools were returned to the research in a sealed envelope in an effort

to limit this risk. Lastly, participants may have felt coerced to participate because of the progression requirements in the school of nursing or due to the fact the researcher was faculty of record for two participant groups. Participants were encouraged to discuss concerns regarding feelings about participating in this research with the researcher, the participant's advisor, or the university counseling center. Contact information for the counseling center was provided on the information letter. Additionally, to help decrease the risk of students' feeling coerced to participate and to protect confidentiality, the following measures were taken:

- No faculty member teaching the participant was involved in recruitment or data collection.
- Participants were counseled not to complete any question which made the participant uncomfortable.
- Data was collected anonymously in a sealed envelope.
- Sealed envelopes were not opened until grades were submitted for the courses.
- Only the researcher and faculty sponsor had access to the individual data collection tools.

The researcher entered the collected data into an Excel spreadsheet after which the data collection tools were then stored in a locked cabinet in the researcher's office. Only the researcher and the faculty sponsor had access to the data for analysis.

Two anticipated benefits of participation in this study were identified. First, participants may gain a greater sense of appreciation for research related to adult education and nursing education. Specifically, the participants are required to successfully complete a course on research in nursing. Participation in this research effort

may have provided an opportunity to witness the actual research process thus enforcing the importance of research procedures such as IRB approval, informed consent, consideration of methods to ensure confidentiality and proper data storage, and data collection tools. In addition, students may have gained a sense of self-contribution to the larger field of knowledge regarding adult education and academic self-regulation.

Statistical Analysis

Data was originally entered into an Excel spreadsheet and then imported into Statistical Package for the Social Sciences (SPSS) Version 15 for further analysis. For this study, descriptive statistics were used to analyze the demographic data and scores on the LSRQ. A one-way Analysis of Variance (ANOVA) was completed to determine the differences between self-regulated learning in the two distinct groups of nursing students. Student group was the independent variable and the differences in student academic self-regulation between groups was the dependent variable. The one-way ANOVA is used to test the difference among the independent groups and analyzes categorical or nominal independent variables and continuous (interval or ratio data) variables (Polit & Beck, 2006).

The data collected was analyzed in the following manner:

1. A one way ANOVA was conducted on both autonomous regulation subscale (ARS) scores and the controlled regulation subscale (CRS) scores to determine if statistically significant differences existed between to two groups. Statistical significance was set at $p < 0.05$.

2. The demographic variables were further analyzed with followup ANOVAs and subsequent post-hoc analysis was performed, as appropriate, to further isolate any reported differences between groups.

3. Simple linear regression analyses of the demographic data of participant age and the number of dependent children in relation to the ARS was also conducted. Results from the study will be further discussed in Chapter IV.

Summary

While nursing academia has long assumed academic self-regulation differences in nursing students in different educational settings, limited research exists which has focused on the academic self-regulation in nursing students. The understanding of the differences in student achievement motivation across nursing educational environments would provide insight to nursing faculty as coursework outcomes and learning outcomes are developed. In addition, academic self-regulation theory may provide an impetus for faculty decision making regarding teaching methods such as hybrid or on-line course offerings. This research explores the existence of differences in academic self-regulation across distinct nursing student populations and provides insight into the impact of additional variables such as age, gender, race, socioeconomic status, family size, and fiscal responsibility on academic self-regulation.

This chapter presented the methods used in this research study to include the purpose and design of the study, population and sample selection, instrument validity and reliability, data collection strategies, and the data analysis process. The results of the data analysis will be discussed in detail in Chapter IV.

CHAPTER IV

RESULTS

The purpose of this study was to determine if there was a difference in self-regulation behaviors (autonomous vs. controlled) in two distinct groups of nursing students: (a) traditional baccalaureate nursing students, and (b) non-traditional baccalaureate nursing students (licensed nurses who have previously completed a diploma or associate degree nursing program and are returning to nursing school to obtain a baccalaureate degree). Research participants were nursing students in a baccalaureate nursing program at one south-eastern public Alabama university.

Research Questions

The following research questions were used in this study:

1. Is there a statistically significant difference in academic self-regulation behaviors (autonomous versus controlled) in the following two distinct groups of nursing students: Traditional baccalaureate nursing students and non-traditional baccalaureate nursing students (licensed nurses who have previously completed a diploma or associate degree nursing program and are returning to nursing school to obtain a baccalaureate degree)?
2. Are there significant differences in the following demographic characteristics between the same two groups of baccalaureate nursing students: Age, sex,

ethnicity, marital status, family structure, number of dependent children, previous healthcare experience, current GPA, number of hours in independent study per week, number of hours studying collaboratively per week, number of work hours per week, and number of years since previous degree?

The data collected was analyzed in the following manner:

1. A one way Analysis of Variance (ANOVA) was conducted on both ARS scores and the CRS scores to determine if statistically significant differences existed between to two groups. Statistical significance was set at $p < 0.05$.

2. The demographic variables were further analyzed with followup ANOVAs and subsequent post-hoc analysis was performed, as appropriate, to further isolate any reported differences between groups.

3. Simple linear regression analyses of the demographic data of participant age and the number of dependent children in relation to the ARS was also conducted.

The final sample consisted of 200 participants, 149 traditional baccalaureate nursing students (TBNS) and 51 non-traditional baccalaureate nursing students (NTBNS). The researcher initially entered the data into a Microsoft Excel spreadsheet and then imported the data into Statistical Package for the Social Sciences (SPSS) Version 15 for analysis. Further analysis was completed using R-Project software. For this study, descriptive statistics were used to analyze the demographic data and scores on the LSRQ. A one-way ANOVA was completed to determine the differences between self-regulated learning in two distinct groups of nursing students. Student group was the independent variable and the student academic self-regulation as operationalized by the participants' scores on the LSRQ acted as the dependent variable.

Study Design

This is a cross-sectional study which focused on the identification of academic self-regulation differences in two distinct groups of nursing students in an effort to assist nurse educators in understanding the varying self-regulation of nursing students. As an exploratory method, descriptive studies garner a large amount of data which can then be explored in a cross-sectional manner to determine possible relationships between suspected variables (LoBiondo-Wood & Haber, 2006) and additional variables can be readily examined to determine new information about a phenomena (Merriam & Simpson, 1995). This study design compared student learning self regulation as measured by scores on the Learning Self-Regulation Questionnaire (LSRQ) for two distinct groups of nursing students, TBNS and NTBNS, through the use of a one way ANOVA. The differentiation in student classification served as the independent variable and the dependent variable was the three resultant LSRQ scores. The assumptions associated with the ANOVA test were met. The scores were normally distributed in the population. Random and independent sampling took place. Levene's Test of Equality of Error Variances (p = .710) indicated the group variance was not statistically significantly different; therefore, the assumption of equal variances was not violated.

Sample size with a minimum of 100 participants was desired by the researcher in an effort to ensure power and generalizability of the findings. The initial sample consisted of a total of 215 participants. Fifteen of 215 participants did not complete all aspects of the Demographic Data Collection Tool (DDCT); consequently, those participants' responses were not included in the analyzed sample. The final sample was comprised of

200 participants. The TBNS group consisted of 149 participants, 74.5% of the overall sample, and the NTBNS group consisted of 51 participants, 25.5% of the overall sample.

Descriptive Statistics

The age range of the participants was from 19 to 55 years with a mean age of 27.79 years, mode of 21 years, median of 24 years, and a standard deviation of 8.44. The sample included 154 Caucasians (77%), 37 African-Americans (18.5%), three Hispanics (1.5%), and two Asians (1%). Four participants indicated "other" ethnicity (2%). The sample consisted of 168 female participants (84%) and 32 male participants (16%). A breakdown of the additional independent variables obtained from the DDCT is provided in Table 8, Table 9, Table 10 and Table 11.

Instrumentation

Prior to analyzing the data, instrument reliability of the LSRQ was ensured by performing a Cronbach's alpha test of internal consistency on the instrument. Cronbach's alpha tests were computed for both the ARS and the CRS subscales. The reported Cronbach's alpha on the items used to calculate the ARS and the CRS were .77 and .73 respectively. These scores fall within the desired score of 0.70 or greater on a scale of 0 to 1.0 (LoBiondo-Wood & Haber, 2006) which indicates that the LSRQ provided a consistent measure. "As a rough rule of thumb, a measure is considered reliable for most research and practical purposes if its reliability coefficient is .80 or higher. (In the case of one type of reliability coefficient, Cronbach's Alpha, a value of .70 or higher is usually

Table 8

Review of Study Variables Including Sex, Ethnicity, Marital Status, & Family Structure

Variable	TBNS		NTBNS	
	n	%	*n*	%
SEX				
Female	129	86.6	39	76.5
Male	20	13.4	12	23.5
ETHNICITY				
Caucasian	118	79.2	36	70.6
African-American	22	14.8	15	29.4
Hispanic	3	2.0	0	0.0
Asian	2	1.3	0	0.0
Other	4	2.7	0	0.0
MARTIAL STATUS				
Single	108	72.5	11	21.6
Married	31	21.0	33	64.7
Divorced	10	6.5	7	13.7
Widowed	0	0.0	0	0.0
FAMILY STRUCTURE				
No children	111	74.5	12	23.5
Two-parent family	26	17.5	33	64.7
One-parent family	12	8.0	6	11.8

N = 200

Table 9

Review of Study Variables Including Number of Dependent Children, Previous Healthcare Experience & Current GPA

Variable	TBNS		NTBNS	
	n	%	*n*	%
NUMBER OF DEPENDENT CHILDREN				
None	110	73.8	14	27.5
One	20	13.4	16	31.3
Two	11	7.4	19	37.2
Three	6	4.1	1	2.0
Four	1	0.6	1	2.0
Five	1	0.6	0	0.0
PREVIOUS HEALTHCARE EXPERIENCE				
Yes	56	37.6	51	100
No	93	62.4	0	0.0
CURRENT GPA				
2.0 – 2.49	1	0.6	0	0.0
2.5 – 2.99	31	21.0	8	15.7
3.0 – 3.49	74	49.7	21	41.2
3.5 – 4.0	43	28.7	22	43.1

N = 200

Table 10

Review of Study Variables Including Number of Independent Study Hours & Collaborative Study Hours per Week

Variable	TBNS		NTBNS	
	n	%	*n*	%
# OF HOURS SPENT INDEPENDENTLY ON SCHOOL WORK PER WEEK				
<5	2	1.3	2	3.9
6 to 10	14	9.4	7	13.7
11 to 15	30	20.1	8	15.7
16 to 20	46	30.8	13	25.5
21 to 25	22	14.8	7	13.7
26 to 30	17	11.4	6	11.8
> 30	18	12.1	8	15.7
# OF HOURS SPENT IN COLLABORATION ON SCHOOL WORK PER WEEK				
<5	46	30.1	15	29.4
6 to 10	32	21.4	11	21.6
11 to 15	18	12.1	10	19.6
16 to 20	14	9.4	5	9.8
21 to 25	11	7.4	4	7.8
26 to 30	10	6.7	4	7.8
> 30	18	12.1	2	3.9

N = 200

Table 11

Review of Study Variables Including Number of Hours Employed per Week & Years Since Previous Degree

Variable	TBNS		NTBNS	
	n	%	*n*	%
# OF HOURS EMPLOYED PER WEEK				
0	80	53.7	2	3.9
1 to 10	15	10.1	0	0.0
11 to 20	40	26.8	4	7.8
21 to 30	11	7.4	2	3.9
31 to 40	3	2.0	42	82.4
> 40	0	0.0	1	2.0
YEARS SINCE PREVIOUS DEGREE				
1 to 3 years	17	11.5	15	29.4
4 to 5 years	20	13.4	16	31.3
6 to 10 years	8	5.3	17	33.4
11 to 15 years	0	0.0	3	5.9
>15 years	0	0.0	0	0.0
No previous degree	104	69.8	0	0.0

N = 200

sufficient)" (Gall, Gall & Borg, 2005, p. 140). Assurance of survey tool reliability was imperative as the tool was slightly modified to reflect nursing curricula and questions were generalized to learning efforts related to all nursing curriculum courses. In previous studies, the LSRQ was designed to focus solely on one particular course (Black & Deci, 2000: Williams & Deci, 1996).

Data Analysis

The LSRQ provides a total of three scores for each participant: (a) the ARS score; (b) the CRS score; and (c) the Relative Autonomy Index score. Since the Relative Autonomy Index score is comprised of further calculation of the two subscales, analysis of the Relative Autonomy Index score was not performed. The ARS score was determined by averaging participant answers to the following questions: 1, 3, 6, 9, 11, 13, and 14. The CRS score required averaging of participant responses to questions 2, 4, 5, 7, 8, 10, and 12. Table 12 provides the means and standard deviations for participant responses on the LSRQ for all 14 questions. The means for the questions utilized to calculate the ARS scale (1, 3, 6, 9, 11, 13, and 14) are significantly higher than the means for the questions specific to the CRS scale (2, 4, 5, 7, 8, 10, & 12) as a direct result of the use of a Likert-type responses to which the participants indicated the likelihood of that choice using a Likert-type response with answer choices ranging from 1 indicating "not at all true" to 7 indicating "very true."

Table 13 presents the means and standard deviations by group for the ARS score and the CRS score. A one way ANOVA was computed comparing the ARS scores and the CRS cores for the two participant groups. An ANOVA is used to analyze the

Table 12

Means & Standard Deviations for LSRQ for Entire Sample

Question	*M*	*SD*
Question 1	*6.22*	*1.06*
Question 2	*2.09*	*1.51*
Question 3	*6.58*	*0.82*
Question 4	*4.76*	*1.92*
Question 5	*5.32*	*1.65*
Question 6	*6.06*	*1.16*
Question 7	*4.54*	*2.02*
Question 8	*2.71*	*1.86*
Question 9	*6.70*	*0.78*
Question 10	*4.06*	*1.87*
Question 11	*6.22*	*0.99*
Question 12	*6.44*	*1.02*
Question 13	*5.96*	*1.27*
Question 14	*6.06*	*1.14*

N = 200

relationship of one categorical independent variable and one continuous variable (Cronk, 2008). Although the TBNS group consisted of approximately three times the number of participants than the NTBNS group (n = 149, n = 51 respectively), a statistically

Table 13

Autonomous Regulation Subscale & Controlled Regulation Subscale Means & Standard Deviations by Sample and by Group

Score	Sample $n = 200$		TBNS $n = 149$		NTBNS $n = 51$	
	M	*SD*	*M*	*SD*	*M*	*SD*
ARS score	6.26	0.68	6.19	0.68	6.45	0.63
CRS score	4.28	1.05	4.29	1.03	4.22	1.16

significant difference between groups was found for the ARS scores (F (1,198) = 5.336, p = 0.022). This analysis revealed that participants in the NTBNS group had higher ARS scores (m = 6.45, sd = 0.63) than participants in the TBNS group (m = 6.19, sd = 0.68). No statistically significant difference was determined for the CRS score (F (1,198) = 0.162, p = 0.687).

The initial results prompted follow-up analysis. The data collected from the DDCT was further analyzed with a one way ANOVA for each demographic variable to determine if any additional statistically significant differences existed between ARS scores and CRS scores and participant demographics variables. While a multiple t-test could be conducted to determine group differences, this analysis is subject to the risk of inflating the Type I error and inappropriate interpretation of the results (Cronk, 2008). The ANOVA adjusts for multiple comparisons and provides a single indication of which group is statistically significantly different. Caution must be taken in the interpretation of results as the presence of a relationship does not automatically prove causation (Polit & Beck, 2006).

A one way ANOVA was computed comparing the ARS scores and the CRS scores of the female and male participants. The group size difference is significant

(female, n = 168; male, n = 32). A statistically significant difference between groups was found for the ARS scores only (F (1,198) = 5.226, p = 0.001). This analysis revealed that female participants had higher ARS scores (m = 6.37, sd = 0.60) than male participants (m = 5.88, sd = 0.92). No statistically significant difference was determined for the CRS score (F (1,198) = 2.711, p = 0.120).

A one way ANOVA of ARS scores, CRS scores, and participant age revealed a statistically significant difference between groups related to ARS scores only (F (31,168) = 1.595, p = 0.033). Table 14 presents the means and standard deviations by age for the ARS score and the CRS score. Further post-hoc analysis with Tukey's HSD was not possible because of the presence of groups with fewer than 2 cases. Post-hoc was conducted with a simple linear regression. The regression equation was not significant for either the ARS score or the CRS score for age (F (1, 198) + 3.62, p = 0.057), with an R2 of 0.13.

An additional one way ANOVA of ARS scores, CRS scores, and number of dependent children was conducted which revealed a statistically significant difference between groups related to ARS scores only (F (5,194) = 2.830, p = 0.017). Further post-hoc analysis with Tukey's HSD was not possible because one group was limited to fewer than 2 cases. Post-hoc was again conducted with a simple linear regression. The regression yielded a statistically significant result for the number of dependent children. A statistically significant regression equation was found for ARS based on the number of dependent children: (F (1,198) = 5.815, p = 0.017), with an R2 of .029. Participants' predicted ARS scores were 6.179 + 116 for each dependent child.

Table 14

Autonomous Regulation Subscale & Controlled Regulation Subscale Means & Standard Deviations by Age

Variable	Autonomous		Controlled	
	M	*SD*	*M*	*SD*
AGE				
19 (*n* = 3)	6.95	.08	4.38	.68
24 (*n* = 24)	6.33	.46	4.43	.93
21 (*n* = 31)	6.14	.60	4.50	.93
22 (*n* = 25)	6.15	.61	4.27	1.08
23 (*n* = 14)	6.27	.57	4.37	1.08
24 (*n* = 9)	5.75	1.24	3.89	.74
25 (*n* = 10)	5.90	.87	3.66	1.39
26 (*n* = 4)	6.36	.75	4.96	1.11
27 (*n* = 2)	6.36	.10	4.14	1.21
28 (*n* = 5)	6.74	.38	4.00	1.06
29 (*n* = 3)	6.67	.33	4.29	1.24
30 (*n* = 8)	6.45	.93	4.30	1.01
31 (*n* = 6)	5.90	.81	3.95	.96
32 (*n* = 5)	6.40	.74	4.00	.93
33 (*n* = 8)	6.54	.49	4.23	1.36
34 (*n* = 2)	7.00	.00	5.29	.00
35 (*n* = 3)	6.62	.36	4.57	.80
36 (*n* = 6)	6.05	.30	3.83	1.10
37 (*n* = 4)	6.61	.48	5.18	.77
38 (*n* = 3)	6.76	.41	5.00	.25
40 (*n* = 3)	6.33	.59	4.48	1.86
42 (*n* = 2)	6.29	1.01	4.71	2.02
43 (*n* = 1)	6.86	---	3.14	---
44 (*n* = 5)	6.34	.60	4.09	1.12
45 (*n* = 2)	6.29	.61	5.29	.81
46 (*n* = 3)	6.00	.94	3.76	1.84
47 (*n* = 2)	5.71	.20	4.07	.10
48 (*n* = 1)	3.86	---	2.00	---
49 (*n* = 2)	6.86	.20	5.21	.51
51 (*n* = 1)	7.00	---	2.71	---
52 (*n* = 2)	6.21	.30	2.93	.30
55 (*n* = 1)	6.57	---	3.43	---

N = 200

Further data analysis of ARS scores, CRS scores, and family structure revealed a statistically significant difference between groups related to ARS scores only (F (2,197) = 4.421, p = 0.01). Post-hoc analysis with the Tukey's Honestly Significant Difference (HSD) was conducted to determine where the difference existed. This analysis revealed that participants in a family without children had statistically significantly lower ARS scores (m = 6.15, sd = 0.73) than participants in a one-parent family structure (m = 6.45, sd = 0.073) and participants in a two-parent family structure (m = 6.43, sd = 0.55). No statistically significant difference was determined for the CRS score (F (1,198) = 2.711, p = 0.120).

Additional data analysis was limited to the review of the means and standard deviations of the independent variables of interest collected via the DDCT. These variables included sex, ethnicity, marital status, family structure, previous healthcare experience, current GPA, number of hours spent independently on school work per week, number of hours spent in collaboration on school work per week, the number of hours employed per week, years since previous degree, and previous degree GPA. Table 15, Table 16, Table 17, & Table 18 report these findings.

Summary

This chapter presented the research findings of this cross-sectional study and explained the findings in relation to the posed research questions. The researcher used Microsoft Excel, SPSS Version 15, and R-Project software to complete the data analysis required for this study. The descriptive statistics were provided and interpreted. A one

Table 15

Autonomous Regulation Subscale & Controlled Regulation Subscale Means & Standard Deviations by Demographic Variable Including Sex, Ethnicity, Marital Status and Family Structure

Variable	Autonomous		Controlled	
	M	*SD*	*M*	*SD*
SEX				
Female (*n* = 168)	6.37	0.60	4.33	1.02
Male (*n* = 32)	5.88	0.92	4.01	1.21
ETNICITY				
Caucasian (*n* = 154)	6.23	0.69	4.32	1.01
African-American (*n* = 37)	6.38	0.66	4.03	1.18
Hispanic (*n* = 3)	5.71	0.14	4.57	1.87
Asian (*n* = 2)	6.36	0.71	4.71	1.21
Other (*n* = 4)	6.29	0.58	4.79	1.01
MARITAL STATUS				
Single (*n* = 119)	6.21	0.67	4.39	1.09
Married (*n* = 64)	6.38	0.68	4.13	0.99
Divorced (*n* = 17)	6.14	0.72	4.07	1.03
Widowed (*n* = 0)	---	---	---	---
FAMILY STRUCTURE				
No children (*n* = 123)	6.15	0.73	4.34	1.05
Two-parent family (*n* = 59)	6.43	0.55	4.17	1.07
One-parent family (*n* = 18)	6.45	0.73	4.19	1.10

N = 200

Table 16

Autonomous Regulation Subscale & Controlled Regulation Subscale Means & Standard Deviations by Demographic Variable Including Previous Healthcare Experience, Current GPA, Number of Independent Study Hours per Week

Variable	Autonomous		Controlled	
	M	*SD*	*M*	*SD*
PREVIOUS HEALTHCARE EXPERIENCE				
Yes (*n* = 107)	6.30	0.71	4.18	1.09
No (*n* = 93)	6.21	0.64	4.39	1.02
CURRENT GPA				
2.0 – 2.49 (*n* = 1)	5.85	---	4.14	---
2.5 – 2.99 (*n* = 39)	6.26	0.57	4.51	1.04
3.0 – 3.49 (*n* = 93)	6.26	0.64	4.27	1.11
3.5 – 4.00 (*n* = 67)	6.26	0.79	4.14	0.99
NUMBER OF INDEPENDENT STUDY HOURS PER WEEK				
< 5 (*n* = 4)	5.82	1.00	3.68	0.92
6 to 10 (*n* = 21)	6.12	0.60	3.83	1.13
11 to 15 (*n* = 38)	6.24	0.81	4.50	1.14
16 to 20 (*n* = 59)	6.28	0.61	4.42	0.89
21 to 25 (*n* = 29)	6.31	0.62	4.48	1.12
26 to 30 (*n* = 30)	6.22	0.72	4.15	1.27
>30 (*n* = 26)	6.34	0.69	3.93	0.82

N = 200

Table 17

Autonomous Regulation Subscale & Controlled Regulation Subscale Means & Standard Deviations by Demographic Variable Including Number of Collaborative Study Hours Per Week and Number of Hours Employed Per Week

Variable	Autonomous		Controlled	
	M	*SD*	*M*	*SD*
# OF HOURS COLLABORATING ON SCHOOL WORK PER WEEK				
< 5 (*n* = 61)	6.19	0.73	4.16	1.11
6 to 10 (*n* = 43)	6.27	0.53	4.44	0.93
11 to 15 (*n* = 28)	6.37	0.45	4.45	0.95
16 to 20 (*n* = 19)	6.38	0.64	4.41	1.20
21 to 25 (*n* = 15)	6.23	1.01	4.60	1.09
26 to 30 (*n* = 14)	6.36	0.72	4.13	1.09
>30 (*n* = 20)	6.11	0.80	3.76	1.02
# HOURS EMPLOYED PER WEEK				
0 (*n* = 83)	6.26	0.60	4.38	0.96
1 to 10 (*n* = 16)	5.91	1.03	3.94	1.00
11 to 20 (*n* = 42)	6.16	0.70	4.36	1.07
21 to 30 (*n* = 13)	6.35	0.55	4.04	1.26
31 to 40 (*n* = 44)	6.41	0.65	4.22	1.19
>40 (*n* = 2)	6.79	0.30	3.79	0.51

N = 200

Table 18

Autonomous Regulation Subscale & Controlled Regulation Subscale Means & Standard Deviations by Demographic Variable: Years Since Previous Degree

Variable	Autonomous		Controlled	
	M	*SD*	*M*	*SD*
YEARS SINCE PREVIOUS DEGREE				
No previous degree (*n* = 105)	6.15	0.62	4.30	0.96
1 to 3 (*n* = 40)	6.24	0.87	4.22	1.17
4 to 5 (*n* = 17)	6.54	0.64	4.32	1.21
6 to 10 (*n* = 15)	6.33	0.52	4.02	1.04
11 to 15 (*n* = 9)	7.0	0.00	5.27	0.86
> 15 (*n* = 14)	6.17	0.57	3.88	1.14

N = 200

way ANOVA was conducted to determine the existence of differences in academic self-regulation differences in two distinct groups of nursing students. The initial results lead to follow-up analysis which included further descriptive statistics and the performance of simple linear regression to determine the prediction of subscale scores based on the additional independent variables of age and the number of dependent children. Statistically significant findings will be further discussed in Chapter V.

CHAPTER V

SUMMARY OF RESULTS, DISCUSSION OF FINDINGS, IMPLICATIONS AND RECOMMENDATIONS

The purpose of this study was to determine if there was a difference in self-regulation behaviors (autonomous vs. controlled) in two distinct groups of nursing students: (a) traditional baccalaureate nursing students, and (b) non-traditional baccalaureate nursing students (licensed nurses who have previously completed a diploma or associate degree nursing program and are returning to nursing school to obtain a baccalaureate degree). Research participants were nursing students in a baccalaureate nursing program at one south-eastern public Alabama university.

The following research questions were explored in this study:

1. Is there a statistically significant difference in academic self-regulation behaviors (autonomous versus controlled) in the following two distinct groups of nursing students: Traditional baccalaureate nursing students and non-traditional baccalaureate nursing students (licensed nurses who have previously completed a diploma or associate degree nursing program and are returning to nursing school to obtain a baccalaureate degree)?

2. Are there significant differences in the following demographic characteristics between the same two groups of baccalaureate nursing students: Age, sex, ethnicity, marital status, family structure, number of dependent children, previous

healthcare experience, current GPA, number of hours in independent study per week, number of hours studying collaboratively per week, number of work hours per week, and number of years since previous degree?

This chapter serves as a summation of this research project. The conclusions reached from the analysis of the data will be presented and discussed as they relate to the posed research questions. The implications for nursing education and higher education will be discussed and recommendations for further research will be offered.

Summary of Results

Nurse educators must understand the uniqueness of nursing student subgroups in order to better serve these student groups and support the academic development of critical thinking and self-directed learning strategies (Billings & Halstead, 2005; Cowman, 1998; Magena & Chabeli, 2005; Välimäki, Itkonen, Joutsela, Koistinen, Laine, Paimensalo, Siiskonen, Suikkanen, Ylitörmänen, Ylönon, & Helenius, 1999). This study explored the existence of possible differences in academic motivation between the following two distinct student subgroups: Traditional baccalaureate nursing students (TBNS) and non-traditional baccalaureate nursing students (NTBNS).

The research questions posed in this study were answered. Question 1 of the research study is as follows: Is there a statistically significant difference in academic self-regulation behaviors (autonomous versus controlled) in the following two distinct groups of nursing students: Traditional baccalaureate nursing students and non-traditional baccalaureate nursing students (licensed nurses who have previously completed a diploma or associate degree nursing program and are returning to nursing school to

obtain a baccalaureate degree)? Yes, there was a statistically significant difference in scores on the LSRQ completed by this sample. Analysis of the data through the computation of a one way Analysis of Variance (ANOVA) revealed that the participants in the NTBNS group had higher autonomous regulation subscale (ARS) scores than participants in the TBNS group. No statistically significant difference was determined for the controlled regulation subscale (CRS) scores.

Question 2 posed the following question: Are there significant differences in the following demographic characteristics between the same two groups of baccalaureate nursing students: Age, sex, ethnicity, marital status, family structure, number of dependent children, previous healthcare experience, current GPA, number of hours in independent study per week, number of hours studying collaboratively per week, number of work hours per week, and number of years since previous degree? These demographic variables data collected with the Demographic Data Collection Tool (DDCT) were further analyzed by the use of a one way ANOVA to determine if a statistically significant difference existed and followup post-hoc analysis was performed as warranted by the initial results. This analysis revealed that female participants had higher ARS scores than male participants. Age was statistically significant in relation to ARS scores; however, post-hoc analysis did not reveal where the difference existed. Participant's scores on the ARS increased for each dependent child in the household. Family structure impacted ARS scores; specifically, participants in family without children had lower ARS scores than participants in a one-parent family structure and participants in a two-parent family structure.

Further review of the means and standard deviations on the ARS scores in relation to the demographic variables revealed the following revelations: a) African-American and Asian students reported a higher ARS score than other minorities; b) married students had higher ARS scores than single students or divorced students; c) students heading up single-parent family households and two-parent households reported higher ARS scores than students without children; d) students with previous healthcare experience reported a higher ARS score than those students with no prior healthcare experiences; e) students who spent more than 30 hours a week in independent study of nursing content reported higher ARS subscores than whose studied less; f) the highest mean scores on the ARS were reported for students who were employed more than 40 hours per week; and g) students with a previous degree showed increased mean ARS scores in comparison with students who were pursuing their first degree.

There was no significant variance in ARS scores for collaboration with nursing studies or years since previous degree. Of interest were the identical mean scores for ARS scores for participants in following three GPA ranges: 2.5 to 2.99, 3.0 to 3.49, and 3.5 to 4.0. One participant with a self-reported GPA between 2.0 and 2.49 had a significantly lower mean ARS score of 5.85; however, no conclusions can be drawn from this difference as the sample was limited to one participant.

Discussion of Findings

There were several limitations of this study. These limitations will be presented prior to exploring the implications of this study's findings. This study was limited to the use of one student body population from one south-eastern public Alabama university

which resulted in a limited convenience sampling of 215 voluntary participants. Fifteen participants did not fully complete the DDCT and the data from these participants was removed from the sample resulting in a sample size of 200. This sample size exceeded the desired minimum of 30 participants per group (Polit & Hungler, 1999); however, an increased sample size would strengthen the power of this study. The inequality of student classification groups (TBNS: $n = 149$, NTBNS: $n = 51$) is inherent in convenience sampling as there is no assurance of equality when using a convenience sampling.

The timing of the completion of the LSRQ and the DDCT varied tremendously throughout the sample. Five student groups were surveyed, two groups of NTBNSs and three groups of TBNSs. Data collection time frames for TBNS students were as follows: (a) Group 1 collected at the end of five semesters immediately prior to graduation; (b) Group 2 collected at the end of the second semester; and (c) Group 3 collected within the first two weeks of the first semester in upper graduate study. Data collection time frames for NTBNS students were as follows: (a) Group 1 collected at the end of three semesters of curriculum and immediately prior to graduation and (b) Group 2 collected at the beginning of the first of three semesters of curriculum. In summary two groups were surveyed within the first semester, one group was surveyed mid-semester, and two groups were surveyed just prior to graduation. This factor is a major limitation and may have negatively contributed to the reported variances. Bruner (1964) purported that most learners are initially dependent on extrinsic motivation at the beginning of a learning activity. As the learner develops an understanding of the value of the knowledge or content and interest increases, there may be a shift toward intrinsic motivation. Students

just entering the nursing curriculum may not have internalized the value of the content in relation to future endeavors. It is prudent to recognize that the internalization of the value of the content would be much different at the end of the curriculum than at the beginning or shortly thereafter. In addition, returning previous degree students, NTBNSs, may have higher scores because they have a starting point on which to anchor the acquisition of new knowledge and recognize the value of the content presented in the curriculum.

The validity of self-reporting may be impacted by student concern with faculty evaluation of the LSRQ survey results. Students may have been compelled to answer the survey tool in the manner that they thought was desirable as opposed to strictly and honestly answering the survey questions. In addition to the concern about sample size, non-traditional baccalaureate nursing students (NTBNS) (n = 51) comprised only one-fourth of the sample, while traditional baccalaureate nursing students (TBNS) comprised three-fourths of the sample (n = 149). This may also impact the generalizability of the research findings.

The lack of ethnic diversity in this convenience sample may also contribute to the limitation of the research findings. The ethnicity of the sample included 154 Caucasians (77%), 37 African-Americans (18.5%), three Hispanics (1.5%), two Asians (1%), and four participants who indicated "other" (2%). In addition, the gender diversity of the sample consisted of 168 female participants (84%) and 32 male participants (16%). The American Association of Colleges of Nursing Research and Data Center (2007) report the race/ethnicity percentages for the generic baccalaureate nursing programs in the State of Alabama in 2006 to be as follows: Caucasian 79.6%, African-American 16%, Hispanic 1.2%, Asian 2.4%, and other 0.7%. Nationally, males in baccalaureate nursing programs

account for 10.0% of nursing school graduates (NLN, 2008). This sample demographic for ethnicity and sex is similar to the enrollment data of nursing student body population at this south-eastern public Alabama university for the past five years and closely parallels the diversity within nursing programs within the State of Alabama; however, a sample with increased diversity would increase the generalizability of the study findings on a national level.

Another significant limitation of the study is directly related to student age. The age range of the participants was from 19 to 55 years with a mean age of 27.79 years, a mode of 21 years, a median of 24 years, and a standard deviation of 8.44. These statistics indicate that the majority of participants were young adults. The LSRQ was developed to assess the learning self-regulation of the adult learner. The NLN (2006) reports that 43% of all pre-licensure nursing graduates in 2006 were over the age of 30 and 16% were over the age of 40. The mean age of this sample, 27.79 years, limits the ability to generalize these findings to the nursing student population at large.

While there is a statistically significant difference between autonomous self-regulation in the student groups, it was not possible to determine which individual factors may have contributed to the group differences. The research results, however, did add to the body of knowledge regarding adult learning self-direction. The LSRQ (Williams & Deci, 1996) was initially designed for use with adult learners to assess learning motivation on two scales: Controlled regulation (external regulation or introjected regulation) and autonomous regulation (identified regulation or intrinsic regulation). These two levels of regulation are both categorized under external motivation; however, the differentiation of academic self-regulation between these two categories serves as the

transitional point as the learner moves from extrinsic to intrinsic motivation (Williams & Deci). This tool has been utilized to assess adult learners in various college courses to include organic chemistry (Williams & Deci) and organ systems (Black & Deci, 2000). The successful modification of the LSRQ to reflect nursing school curriculum as a whole, as opposed to merely one course, and the subsequent confirmation of instrument reliability as ensured by the performance of a Cronbach's alpha test of internal consistency on the instrument, further legitimizes this survey tool for use in additional programs of study.

The variable of age as a predictor of self-regulatory behaviors such as cognitive maturity, use of learning strategies, metacognition, and motivation have revealed that older undergraduate students are generally more self-aware, demonstrate greater self-regulation, and report both intrinsic and extrinsic motivation (Alexander, Murphy, Woods, Duhon & Parker, 1997; Gadzella, Stephens, & Baloglu, 2002; Justice & Dornan, 2001; Kasworm, 2003; Smedley, 2007). Academic self-regulation has been reported by previous investigators be higher in older students (Smedley, 2007); however, Knowles (1980) acknowledged that many mature adults remain extrinsically motivated in the learning environment. The findings of this research study indicated that age was not a significant contributing factor related to autonomous regulation for this sample of nursing students. While this finding cannot be automatically applied to the population, it does add to the discussion.

Gender differences have been found to relate to variances in motivation as a result of variation in enjoyment of the learning task and variations in response to reward contingencies; however, these variations are common across all individuals and have not

been directly linked to an individual's sex (Deci, Mims, & Koestner, 1983). This sample consisted of 168 females (84%) and 32 males (16%). While the females reported higher ARS scores, these findings may reflect an inadequate male sample to make a strong analysis. This is a limitation that is directly linked to the use of convenience sampling.

Many researchers have encouraged additional research focusing on individual adult learner variances, the impact of motivational factors on student success in the formal learning environment, and the relationship of age, degree persistence and intrinsic motivation (Alexander & Murphy, 1999; Bye, Pushkar. & Conway, 2007). Tutor (2006) reported that academic self-regulation is a significant predictor of academic success. The investigation of demographic characteristics revealed that there are specific life factors that may positively contribute to higher autonomous regulation. These factors include marital status, parenthood, fulltime employment, previous healthcare experience, and routinely spending more than 30 hours a week in independent study of nursing content. When looking at single factors, the factors may seem coincidental; however, when viewed in relation to the demands of nursing school curriculum, students presenting with these life factors must be highly motivated to successfully complete the nursing curriculum and earn the baccalaureate degree. The results of this study support the inclusion of these students into nursing academia. Often nursing faculty view students with multiple life responsibilities as distracted and may negatively assume that these students are less engaged and less motivated. These research findings argue that additional life roles and responsibilities contribute to increased autonomous regulation.

Within this sample, 39 of 51 (76.5%) NTBNS were parents and 38 of 149 (25.5%) TBNS were parents, a difference of over one-half. It could be argued that

employment pursuits and monetary rewards are not solely extrinsic values but contribute to the intrinsic motivation that compels the student who is a spouse or parent to contribute to the needs of the family. Parenthood and the provision of sufficient economic family resources is a major motivator; however, there are many nursing students who are young, single and childless who are just as highly autonomously regulated and highly motivated. While this sample size is limited, educators would be wise to consider that the findings of this research study support the argument that life factors may, in fact, be more contributory to academic self-regulation than student degree choice (associate degree versus baccalaureate degree). It is imperative that nurse educators recognize the unique challenges facing all nursing students and resist discrediting a student's commitment to the learning automatically because they are satisfying multiple life roles.

Myers (1999) asserted that associate degree nurses may demonstrate higher intrinsic motivation because the successful attainment of a nursing degree would help to solve acute problems such as the need for economic stability. Myers further argued that baccalaureate students are typically younger and seek degrees in nursing due to the "extrinsic value of employment pursuits and monetary rewards" (1999, p. 92). Delaney and Piscopo (2004) investigated the motivation of NTBNSs to obtain a baccalaureate nursing degree and reported several motivational factors which include the desire to compete in the work environment and experience professional advancement and personal growth. While this research study does demonstrate a difference in academic self-regulation between TBNS and NTBNS, the information gained can not support or refute the claims of the cited research.

While this study focused on identifying group differences in academic self-regulation, the information provided on contributory factors may further the understanding of the importance of support attainment of increased autonomous regulation for nurse educators as well as nursing students. Multiple research studies have concluded that learners who are autonomously regulated derive psychological benefits such as better learning outcomes, better task performance, better behavioral performance, increased self-efficacy, increased mood, positive coping strategies and increased enjoyment of learning (Black & Deci, 2000; Ryan & Connell, 1989; Grolnick & Ryan, 1987). Burton, Lydon, D'Alessandro, and Koestner (2006) suggested that intrinsic motivation and the accompanying interest and enthusiasm predict academic performance; therefore, nurse educators should strive to progress along the continuum of academic self-regulation in an effort to improve student learning outcomes.

Multiple opportunities exist for educators to support academic motivational progression from controlled to autonomous as proposed in self-determination theory (Svinicki, 2004). Nurse educators can increase self-directed learning for all through the implementation of many different strategies. Learner self-motivation is increased when the learner has academic support from the educator (Dornan, Hadfield, Brown, Boshuizen, & Scherpbier, 2005). This support should include organizational support, the provision of opportunities for student learning in an optimal learning environment. Pedagogic support should include providing learning opportunities to increase self-regulation by allowing students to contribute to the decision-making process concerning learning objectives and learning strategies, collaboration to establish assignment deadlines, promoting individualization of the course learning activities, providing

accurate and timely scholastic feedback, offering instructional guidance and explanation of content (Fink, 2003; Svinicki, 1999). In addition, affective support can assist students as they transition to a more independent and self-directed learning style. This includes nurturing the student through the process, recognizing and encouraging increased learner autonomy, providing appropriate feedback, and modeling the values of self-regulation through all student- faculty interactions (Svinicki, 2004).

Implications

While life factors such as family and work demands and economics concerns may pose barriers for nursing students to continue academic pursuits (Birks, Chapman, & Francis, 2006; Thompson, 1992; Zuzelo, 2001), it is these factors which may increase academic self-regulation. Nurse educators are challenged to view the totality of the individual and recognize their unique life factors and appreciate how these life factors may contribute to the development of a highly motivated, self-regulated learner. While it is not possible to fully extrapolate this study's findings to the entire nursing student population, these findings should cause nurse educators to pause and consider their biases. "Married with children" and/or "Fully employed" may predict the student's academic self-regulation in the future. The automatic concern for these students' abilities to succeed may be superseded by the recognition of their ability to self-regulate their learning.

Faculty understanding and recognition of possible differences in academic self-regulation across nursing student groups may assist nursing faculty in supporting student learning endeavors and, as a consequence, increase the number of nursing graduates by

limiting the number of students lost to attrition resulting from academic failure. Various methods of supporting student learning self-regulation including formally integrating goal formation, self-monitoring of academic progress, and self-evaluation of learning outcomes into course activities (Schunk & Ertmer, 2000). In addition, modeling self-regulation behaviors in the classroom and during student/faculty interactions can support student development of academic self-regulation.

These research findings add to the body of knowledge documenting variances in nursing student academic self-regulation and provides nurse educators with concrete data on which to base educational decisions regarding content delivery methods, student motivation strategies, and learning activities. Nursing educators must understand and recognize possible differences in academic self-regulation which may exist in relation to individual demographics or student classification. These differences should be further considered when developing curriculum outcomes and course activities. Understanding the impact of life factors on variances in academic motivation can facilitate educators in the development of more effective instructional environments and learning activities.

Educators in higher education, regardless of the discipline, can benefit from these findings by gaining a greater understanding of the complexity of self-regulation and the importance of the role of the educator. The educator must consider the effectiveness of the planned course activities and strive to support academic self-regulation through the proper selection of supportive learning materials, learning activities, and classroom interactions (Azevedo & Cromley, 2004; Barnett, 2000; Porath & Bateman, 2006). In addition, instructional scaffolding through the use of mentoring, journaling, providing timely evaluations and specific feedback, and ensuring a nurturing learning environment

that accepts the adult student and values their life experiences and unique characteristics can enhance student self-regulation.

Recommendations

While these research findings have contributed to the body of knowledge regarding academic self-regulation and differences in nursing student groups, replication of this study could confirm these research findings. Changes in the study design to include administering surveys at a specific point of time in the curriculum (beginning, midway point or end) would increase the validity of the findings. An alternative would be looking at three groups of students, junior level traditional nursing students and senior level traditional nursing students as well as non-traditional baccalaureate nursing students, may reveal additional differences not captured in this study. Additional changes which would strengthen the findings include increasing the sample size, balancing the number of participants in the groups, using more than one student population by sampling other school of nursing, and modifying the DDCT to capture more specific demographic data as opposed to ranges of data.

Further research should be conducted to explore academic self-regulation differences in different learning environments such as hybrid and web-based courses, faculty use of technology to promote increased academic self-regulation, and the effectiveness of faculty introduced self-regulation approaches to enhance student transition to autonomous regulation. In addition, further exploration into the effectiveness of the nurse educator roles in the development and promotion of academic self-regulation strategies is warranted.

Summary

A shift toward intrinsic motivation occurs as learners develop an understanding of the value of knowledge or content (Knowles, Holton, & Swanson, 2005). As undergraduate students progress move into their major field of study and begin to study content they value, intrinsic motivation increases. This holds true for all of higher education, not just in nursing education. External factors in the learning environment, both negative and positive, such as feedback, social support, and the presence of external motivators can contribute to or inhibit academic motivation. Educators must consider the unique needs of the individual student and the theoretical constructs of self-directed learning, self-regulation, and learning motivation and the use of educational strategies and support methods to promote and enhance student integration of content value and progression toward intrinsic motivation. Recognition of differences in student groups' academic self-regulation can assist educators by broadening their understanding of the differences between groups and possible contributing factors. This understanding may enhance educational decisions regarding content delivery methods, student motivation strategies, and learning activities.

Nursing is a demanding scientific educational discipline requiring students to develop academic self-regulation beyond the requirements of many other fields of study. This factor, combined with the recent paradigm shift from a teacher-centered teaching to learner-centered learning, requires nurse educators to understand the uniqueness of individual students and the varying needs of different nursing student subgroups. Nurse educators must develop a knowledge base concerning how to best serve nursing students during the academic development of critical thinking and self-directed learning strategies

(Billings & Halstead, 2005; Cowman, 1998; Magena & Chabeli, 2005; Välimäki, Itkonen, Joutsela, Koistinen, Laine, Paimensalo, Siiskonen, Suikkanen, Ylitörmänen, Ylönon, & Helenius, 1999).

This research can by used to better serve both traditional and non-traditional baccalaureate nursing student by helping nurse educators recognize differences in learning motivation resulting from life characteristics. Nursing faculty should strive to provide learning opportunities which promote self-directed learning and offer appropriate supportive feedback in an effort to assist nursing students in the internalization of the value of the content and their individual move toward intrinsic motivation. Through these efforts, nursing educators, indeed, all educators may be more successful in developing supportive student learning environments and thus increase the number of graduates by limiting the number of students lost to attrition resulting from academic failure.

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APPENDICES

APPENDIX A

LEARNING SELF-REGULATION QUESTIONNAIRE

SELF-REGULATION QUESTIONNAIRE

The following questions relate to your reasons for participating in nursing classes. Different people have different reasons for participating in such a class, and we want to know how true each of these reasons is for you. There are three groups of items, and those in each group pertain to the sentence that begins that group. Please indicate how true each reason is for you using the following scale:

1	2	3	4	5	6	7
not at all true			somewhat true			very true

A. I actively participate actively in my nursing classes:

1. Because I feel like it's a good way to improve my skills and my understanding of patients. ___
2. Because others would think badly of me if I didn't. ___
3. Because learning the content well is an important part of becoming a nurse. ___
4. Because I would feel bad about myself if I didn't study these concepts. ___

B. I follow my instructor's suggestions:

5. Because I will get a good grade if I do what he/she suggests. ____
6. Because I believe my instructor's suggestions will help me nurse effectively. ___
7. Because I want others to think that I am a good nurse. ____
8. Because it's easier to do what I'm told than to think about it. ____
9. Because it's important to me to do well at this. ____
10. Because I would probably feel guilty if I didn't comply with my instructor's suggestions. ____

C. The reason that I will continue to broaden my nursing knowledge is:

11. Because it's exciting to try new ways to work interpersonally with my patients. ____
12. Because I would feel proud if I did continue to improve at nursing. ____
13. Because it's a challenge to really understand what the patient is experiencing. ____
14. Because it's interesting to use the nursing process try to identify what needs the patient has. ___

APPENDIX B

DEMOGRAPHIC DATA COLLECTION TOOL

DEMOGRAPHIC DATA COLLECTION FORM

STUDENT CLASSIFICATION: Junior_____ Senior_____ EARN_____

SEX: _____ AGE: _____ ETHNICITY: Caucasian _____ Hispanic_____
African-American _____ Asian _____
Other _____

MARITAL STATUS:
_____ Single
_____ Married
_____ Divorced
_____ Widowed

DEPENDENT CHILDREN:
_____ 2 parent family
____ 1 parent family
____ no children

OF DEPENDENT CHILDREN: _____

PREVIOUS HEALTHCARE EXPERIENCE
_____ Yes _____ No

CURRENT GPA:
_____ 4.00 to 3.5 _____ 2.99 to 2.50
_____ 3.49 to 3.0 _____ 2.49 to 2.00

NUMBER OF HOURS SPENT INDEPENDENTLY ON SCHOOL WORK PER WEEK:
_____< 5 _____ 16 to 20 _____ > 30
_____ 6 to10 _____ 21 to 25
_____ 11 to15 _____ 26 to 30

NUMBER OF HOURS SPENT IN COLLABORATION ON SCHOOL WORK PER WEEK:
_____< 5 _____ 16 to 20 _____ > 30
_____ 6 to10 _____ 21 to 25
_____ 11 to15 _____ 26 to 30

HOURS EMPLOYED PER WEEK:
_____ 0 _____ 21 to 30
_____ 1 to 10 _____31 to 40
_____ 11 to 20

YEARS SINCE PREVIOUS DEGREE
_____ 1 to 3 years _____ 11 to 15 years
_____ 4 to 5 years _____ > 15 years
_____ 6 to 10 years _____ no previous degree

PREVIOUS DEGREE GPA:
_____ 4.00 to 3.50
_____ 3.49 to 3.00
_____ 2.99 to 2.50
_____ 2.49 to 2.00

APPENDIX C

PERMISSION TO USE THE LEARNING SELF-REGULATION QUESTIONNAIRE

Michelle Schutt

From: Ed Deci [deci@psych.rochester.edu]
Sent: Saturday, November 10, 2007 10:14 AM
To: Michelle Schutt
Subject: Re: Self-Regulation Inventory

You have the permission of Dr. Ryan and myself to use the questionnaire as you specified below.

Ed Deci

On Sat, November 10, 2007 11:14 am, Michelle Schutt wrote:
> Dr. Deci & Dr. Ryan:
> I am presently completing coursework for my doctoral degree in Adult
> Education at Auburn University. I am extremely interested in
> researching the differences in learning self-regulation between
> traditional and non-traditional baccalaureate nursing students. I am
> seeking permission to utilize and slightly modify the Self-Regulation
> Inventory Survey for my research for my dissertation with the hope of publishing my findings.
>
> Thank you for your consideration. Michelle A. Schutt, MSN, RN
>
> Michelle A. Schutt, MSN, RN
> AUM School of Nursing
> 313 Moore Hall
> (334) 244-3670
>

****
Edward L. Deci
Professor of Psychology and
Gowen Professor in the Social Sciences
Department of Psychology
P.O. Box 270266 (for U.S. mail)
355 Meliora Hall (for couriers)
University of Rochester
Rochester, NY 14610
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fax: 585-273-1100
email: deci@psych.rochester.edu
website: http://selfdeterminationtheory.org

APPENDIX D

AUM SCHOOL OF NURSING APPROVAL LETTER

AUBURN
MONTGOMERY

April 1, 2008

Dear Dr. Ellison:

It is my understanding that Michelle A. Schutt is enrolled in the Adult Education doctoral program and plans to conduct research related to learning self-regulation variances in nursing students. I further understand that she plans to collect data from the students currently enrolled in the AUM School of Nursing and may also collect data from future students enrolling in May 2008 and August 2008.

Mrs. Schutt or her representative will approach the students enrolled in upper division nursing courses and ask if they would be willing to participate in her research. Mrs. Schutt's data collection will occur during April, May, and August of 2008. It is my understanding that participation is strictly voluntary and Mrs. Schutt will explain the potential risks and benefits associated with the study to each participant.

I am pleased that Auburn Montgomery School of Nursing can assist in Mrs. Schutt's research efforts.

Sincerely,

Barbara S. Witt

Barbara S. Witt, EdD, RN
Dean, Auburn Montgomery School of Nursing

Attachment 1

AUBURN UNIVERSITY AT MONTGOMERY
SCHOOL OF NURSING
P.O. Box 244023, Montgomery, AL 36124-4023; Telephone: 334-244-3658; Fax: 334-244-3243, www.aum.edu

APPENDIX E

AUM IRB APPROVAL 2008

AUBURN
MONTGOMERY

April 9, 2008

MEMORANDUM

TO: Michelle Schutt, MSN, RN

FROM: Kyle Taylor, Chair, AUM IRB

RE: Your proposal for research, "Examination of learning self-regulation variances in nursing students," **IRB file #2008-09**.

Thank you for submitting your proposal to the IRB for review. Given the nature of your protocols, your proposal is receiving an expedited review in accordance with guidelines set forth in *45 CFR 46* (Code of Federal Regulations). The information letter is appropriate and it would eliminate the possibility of linking the subject to the research document. The data that you are collecting using the survey will be collected anonymously and the risk is minimal. Therefore I am approving this protocol under category 7 of the expedited review process. Please do not make any changes to your research protocols. If you make any changes please halt your research and send the changes to the chair of the IRB for further review. You may only use the forms that have been stamped by Auburn Montgomery's IRB. Your IRB approval is good for one year from these dates (**April 9, 2008 to April 8, 2009**). Please make sure to send a final report to close your file.

Good luck with your project.

AUBURN UNIVERSITY AT MONTGOMERY
Office of Sponsored Programs, Institutional Review Board
P.O. Box 244023, Montgomery, AL 36124-4023; Telephone: 334-244-3250; Fax: 334-244-3895, www.aum.edu

APPENDIX F

AU IRB APPROVAL 2008

AUBURN

UNIVERSITY

Office of Human Subjects Research
307 Samford Hall
Auburn University, AL 36849

Telephone: 334-844-5966
Fax: 334-844-4391
hsubjec@auburn.edu

April 21, 2008

MEMORANDUM TO: Michelle Schutt
Education Foundation Leadership & Technology

PROTOCOL TITLE: "Examination of Learning Self-Regulation Variances in Nursing Students"

IRB AUTHORIZATION NO: 08-100 EP 0804

APPROVAL DATE: April 18, 2008
EXPIRATION DATE: April 17, 2009

The above referenced protocol was approved by IRB Expedited procedure under 45 CFR 46.110 (Category #7):

> "Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

You should report to the IRB any proposed changes in the protocol or procedures and any unanticipated problems involving risk to subjects or others. Please reference the above authorization number in any future correspondence regarding this project.

If you will be unable to file a Final Report on your project before April 17, 2009, you must submit a request for an extension of approval to the IRB no later than April 3, 2009. If your IRB authorization expires and/or you have not received written notice that a request for an extension has been approved prior to April 17, 2009, you must suspend the project immediately and contact the Office of Human Subjects Research for assistance.

A Final Report will be required to close your IRB project file. You are reminded that you must use the stamped, IRB-approved information letter when you consent your participants.

If you have any questions concerning this Board action, please contact the Office of Human Subjects Research at 844-5966.

Sincerely,

Kathy Jo Ellison, RN, DSN, CIP
Chair of the Institutional Review Board
for the Use of Human Subjects in Research

Enclosure

cc: Dr. Jose Llanes
Dr. James Witte

APPENDIX G

IRB REQUIRED RECRUITMENT SCRIPT

RECRUITING SCRIPT

Introduction: Hi, my name is Michelle Schutt. I am a doctoral student at Auburn University and I am conducting a study for my dissertation in partial fulfillment for the education doctorate from Auburn University.

Invitation to Participate: You were selected as a potential participant for a research study entitled "Examination of Learning Self-Regulation Variances in Nursing Students" because you are presently enrolled at the Auburn Montgomery School of Nursing. All of you are invited to participate in this study that will evaluate learning self-regulation. I will study the differences in learning self-regulation across different groups of nursing students.

Agreement to Participate: If you agree to participate, I will need you read the information letter. Your completion of the survey conveys consent to participate in this research. The information letter states that participants will anonymously complete a two-sided document with one side being a short demographic tool and the opposite side being a short survey and return the survey in a sealed envelope. There will be no future requirements of the participants.

Anticipated Risks: The risks associated with this study are minimal but could include a breach in confidentiality, social discomforts, or feelings of coercion to participate. Should you need to discuss your feelings about participating in this research, you can speak with me, your advisor or someone at the Auburn Montgomery Counseling Center. Contact information for the Auburn Montgomery Counseling Center is attached to the informed consent form.

Confidentiality of Data: All information obtained about you will remain confidential in a locked filing cabinet in Room 315 Moore Hall. The only other individuals who will review the data will be professors in the Auburn University educational doctoral program assisting with data analysis. No identification will be provided on the forms to link the response to an individual student.

How the study will help: Your participation will greatly benefit future nursing students and will support efforts to improve teaching effectiveness in the Auburn Montgomery School of Nursing, other schools of nursing, and education as a whole.

Decision to Participate or Not and Withdrawal of Consent: Your decision whether or not to participate will not prejudice your future relations with Auburn University, Auburn Montgomery, or the Auburn Montgomery School of Nursing.

If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty. If you decide to withdraw from the study prior to completing the requested demographic tool and survey, please simply do not return

these collection tools. Once these tools are collected, your specific response tool will not be retrievable as it will not have your name or an identifying code on it.

If you have questions concerning the study, presently or in the future, I will be happy to answer/address those concerns. You can contact me by email at mschutt1@aum.edu or by phone at (334) 328-4293.

APPENDIX H

IRB REQUIRED ALTERNATIVE RECRUITMENT SCRIPT

ALTERNATIVE RECRUITING SCRIPT

NOTE: This script will be used for obtaining informed consent and data collection for two groups of participants: 1) Junior participants during April 2008 and 2) EARN participants during May 2008.

Introduction: Hi, my name is Dr. Debbie Faulk. I am here on behalf of Michelle Schutt, a doctoral student at Auburn University and I am conducting a study for my dissertation in partial fulfillment for the education doctorate from Auburn University.

Invitation to Participate: You were selected as a potential participant for a research study entitled "Examination of Learning Self-Regulation Variances in Nursing Students" because you are presently enrolled at the Auburn Montgomery School of Nursing. All of you are invited to participate in this study that will evaluate learning self-regulation. I will study the differences in learning self-regulation across different groups of nursing students.

Agreement to Participate: If you agree to participate, I will need you to sign an informed consent form. The form states that you agree to the following:

Participants will anonymously complete a two-sided document with one side being a short demographic tool and the opposite side being a short survey. There will be no future requirements of the participants.

Anticipated Risks: The risks associated with this study are minimal but could include a breach in confidentiality, social discomforts, or feelings of coercion to participate. Should you need to discuss your feelings about participating in this research, you can speak with me, your advisor or someone at the Auburn Montgomery Counseling Center. Contact information for the Auburn Montgomery Counseling Center is attached to the informed consent form.

Confidentiality of Data: All information obtained about you will remain confidential in a locked filing cabinet in my office in Room 318 Moore Hall until course grades have been entered in Webster in May (August) at which time I will surrender the data collection tools to Mrs. Schutt. The only other individuals who will review the data will be professors in the Auburn University educational doctoral program assisting with data analysis. No identification will be provided on the forms to link the response to an individual student.

How the study will help: Your participation will greatly benefit future nursing students and will support efforts to improve teaching effectiveness in the Auburn Montgomery School of Nursing, other schools of nursing, and education as a whole.

Decision to Participate or Not and Withdrawal of Consent: Your decision whether or not to participate will not prejudice your future relations with Auburn University, Auburn Montgomery, or the Auburn Montgomery School of Nursing.

If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty. If you decide to withdraw from the study prior to completing the requested demographic tool and survey, please simply do not return these collection tools. Once these tools are collected, your specific response tool will not be retrievable as it will not have your name or an identifying code on it.

If you have questions concerning the study, presently or in the future, I will be happy to answer/address those concerns. You can contact me by email at mschutt1@aum.edu or by phone at (334) 328-4293.

APPENDIX I

INFORMATION LETTER

Auburn University

Auburn University, Alabama 36849-5221

Educational Foundations,
Leadership, and Technology
4036 Haley Center

Telephone: (334) 844-4460
Fax: (334) 844-3072

INFORMATION LETTER

FOR A RESEARCH STUDY ENTITLED "EXAMINATION OF LEARNING SELF-REGULATION VARIANCES IN NURSING STUDENTS"

You are invited to participate in a research study for a research study entitled "Examination of Learning Self-Regulation Variances in Nursing Students" being conducted by Michelle Schutt, MSN, RN under the supervision of Dr. James Witte in the College of Education at Auburn University This study that will evaluate the differences in learning self-regulation across different groups of nursing students. You were selected as a potential participant because you are currently enrolled in the Auburn Montgomery School of Nursing and are age 19 or over.

If you agree to participate, you will be asked to complete a demographic data form and the Self-Regulation Questionnaire. Data collection will take place today after consent is granted. Participation is anticipated to take 10-15 minutes of your time.

The risks associated with this study are minimal but could include a breach of confidentiality, psychological/social discomforts, or a feeling of coercion to participate. Should you need to discuss your feelings about participating in this research, you can speak with me, your advisor or someone at the Auburn Montgomery Counseling Center. Contact information for the AUM Counseling Center is attached to the last page of this document. Additionally, to help decrease the risk of students' feeling coerced to participate and to protect confidentiality, the following measures will be taken:

- No faculty member for this course you are currently taking will be involved in recruitment or data collection.
- You do not have to complete any question you are not comfortable in answering
- Data are being collected anonymously in a sealed envelope
- Envelopes will not be opened until grades are submitted for that course
- Only the investigator and her faculty advisor will have access to the individual data collected

I will reiterate that your decision to participate or not will not influence your relationship to me or your course grade in any class that I instruct. Participation is strictly voluntary.

To help ensure confidentiality of your data, all information obtained about you will be kept in a locked filing cabinet within the School of Nursing in either Room 318 or Room 313. No identifiable code will be used on the collection tool. Once the dissertation has been completed, all hard copy data will be shredded and data stored in the researcher's computer will be permanently deleted. Information collected through your participation will be used to fulfill an educational requirement for my doctoral degree and may be published in a professional journal or presented at a professional meeting.

Appendix C-1

Examination of Learning Self-Regulation Variances in Nursing Students

There is no direct compensation for participation in this research study. However, you participation will greatly benefit future nursing students and will support efforts to improve teaching effectiveness in the Auburn Montgomery School of Nursing, other schools of nursing, and education as a whole

Your decision whether or not to participate will not prejudice your future relations with Auburn University, Auburn Montgomery, or the Auburn Montgomery School of Nursing. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty. If you decide to withdraw from the study prior to completing the requested demographic tool and survey, please restrain from turning in these collection tools. Once these tools are collected, your specific response tool will not be retrievable as it will not have your name or an identifying code on it.

If you have questions concerning the study, presently or in the future, I will be happy to answer/address those concerns. You can contact me by email at mschutt1@aum.edu or by phone at (334) 328-4293.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. IF YOU DECIDE TO PARTICIPATE, THE DATA YOU PROVIDE WILL SERVE AS YOUR AGREEMENT TO DO SO. THIS LETTER IS YOURS TO KEEP.

Investigator's signature Michelle Schutt Date _____

Principle Investigator's Printed Name: Michelle A. Schutt, MSN, RN

In the event that participants need to process feelings associated with this research, they can speak with the researcher, their advisor, or the Auburn Montgomery Counseling Center. Contact information for these individuals is listed below:

Researcher: Michelle A. Schutt, MSN, RN, 313 Moore Hall, Auburn Montgomery School of Nursing, mschutt1@aum.edu, (334) 328-4293.

Advisor: If you are unaware of who your individual advisor is, please contact Lorinda B. Stutheit, Advising and Recruiting, Auburn Montgomery School of Nursing, 306 Moore Hall, Lorinda. Stutheit@aum.edu, (334) 244-3863.

Auburn Montgomery Counseling Center: Room 319 Taylor Center (334) 244-3469

All full and part-time Auburn Montgomery students enrolled in a degree program are eligible for free counseling services. Call for an appointment. Counseling Office Hours: Monday-Friday 8am– 5pm.

Appendix C-1

The Auburn University
Institutional Review Board
has approved this document for use
from 4/18/08 to 4/17/09
Protocol # 08-100 EP 0804

Auburn Montgomery
Institutional Review Board
has approved this document for use
from 4/9/2008 to 4/9/2009
Protocol # 2.08 EP 04